European Tractor Pulling Committee

Pulling rules Europe

The European Tractor Pulling Committee made this rulebook as a guide for you. We hope it will help to make pulling easy and fair for you as we strife to standardize pulling rules and make Truck and Tractor Pulling a safe and fair sport for all involved.

Whenever you need more information, please contact the ETPC Representative of your national organisation. All individual inquiries from pullers, promoters etc. must go through the respective national boards, which, if needed, will pass them on to the ETPC.

ETPC thanks WPI/NTPA for their help to make this rulebook.

Neither the ETPC Board nor the Tech and Safety Board, nor any of their members can be made responsible for any damage or loss of technical or other kind, or for any kind of human injury that may be caused by Truck and Tractor Pulling sport.

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Euro: European Currency

| =New rules : =Renewed rules (partly or complete)

ETPC website: www.tractorpulling.com

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Chapter 1:

ETPC
COMPETITION RULES

A. ETPC

The European Tractor Pulling Committee is the coordinating organisation in Europe.
The European Tractor Pulling Committee is an association, whose objectives are to pursue and promote truck and tractor pulling in the widest sense in Europe.
The following organisations are affiliated to the ETPC:

Osterreichische Tractor Pulling Organisation (OTPO)	Austria
Belgische Kracht Tractoren Vereniging (BKTV)	Belgium
Deutsche Trecker Treck Organisation (DTTO)	Germany
British Tractor Pullers Association (BTPA)	Great Britain
Dansk Tractor Pulling (DTP)	Denmark
Finnish Tractor Pulling Association (FTPA)	Finland
Federation de Tracteur Pulling Française (FTPF)	France
Irish Tractor Pulling Club (ITPC)	Ireland
Tracteur Pulling Italia (TPI)	Italy
Letzebuerger Tractor Pulling Federation (LTPF)	Luxembourg
Nederlandse Truck en Tractor pulling Organisatie (NTTO)	Netherlands
Norges Tractor Pulling Federation (NTPF)	Norway
Svenska Tractor Pulling Kiubben (STPK)	Sweden
Schweizer Tractor Pulling Vereinigung (STPV)	Switzerland
Guestmembers: MTPE, Hungary	
Deport Public, Spain	

Safety

At every ETPC sanctioned event, safety is the name of the game. The sport of truck and tractor pulling has more brute horsepower than any other motorsport in the world. With machinery this powerful, safety aspects cannot be overemphasized. There are many different types of safety equipment required, and this equipment will appear in many different areas of the vehicles. During a pull, safety is always in the front of everyone's mind. The end of the track must be kept open at all times. The ETPC as well as every one of its member organizations will refuse to operate any pull at which a safety hazard is posed to any person. Safety is everybody's responsibility.
The promoter, pullers, spectators, and ETPC officials must work together to ensure the safety of all persons involved.

Warranty disclaimer
The rules in this book are intended as guidelines for the sport of truck and tractor pulling, and the rules relating to the safety of the equipment are the responsibility of each driver who participates in the sport of truck and tractor pulling under these rules.
No expressed or implied warranty of safety is intended nor may be inferred from the publication of these rules, nor the compliance therewith. Nothing herein should be construed as a guarantee against injury or death to participants, bystanders or spectators.
Specifications and rules set forth in this rule book are based upon the recommendations of the WPI/NTPA.

Notice
Competitors are reminded and encouraged to contact the board of their organisation should they plan to build a competition vehicle employing new or unique processes or techniques; or are seeking to alter, change or modify existing competition vehicles, where such processes, techniques, or modifications could raise questions of legality in items of the rules regarding construction and/or safety.

B. COMPETITION RULES

A. Eligibility of contestants

1. All contestants participating in any truck and tractor pulling contest sanctioned by an ETPC member must have a current competition membership. Contestants must be 18 years of age, or at least 16 years of age with a parent's or a guardian's written consent.
2. No driver, tractor nor any combination thereof shall participate or exhibit in a pull or pull in front of a sledge not sanctioned by ETPC or by affiliated member.
   The driver, all team-members, the vehicle and all parts of the vehicle are disqualified for one year and ten days from this years infraction at all sanctioned ETPC or affiliated members pulls.
   The one year and ten days disqualification starts from the last violation day. In case the vehicle is to be sold, the disqualification must be mentioned to the new owner.

B. Vehicle registration

1. Registration means identifying your vehicle with a registration number for points calculation. All vehicles must be registered before competing.
2. The ETPC or affiliated member registration number must appear in a visible area of the vehicle.
3. A vehicle owner may sell the vehicle including the registration number and accumulated points. If points are sold with the vehicle, all points for all classes must be sold.
4. A puller can start competing with a new vehicle during a pulling season and keep his previous points from the season in question on condition that he uses the same name and registration number as with his old vehicle, and his old vehicle is not run anymore on that name and number.
5. On all above-mentioned changes during the pulling year, to be calculated from the 1st of January, your organization board must be notified in writing after sale and before the vehicle is registered for the next pull.

C. Entry procedures

1. Each vehicle may enter at two classes, but only once at each class. A vehicle must compete in a class at that individual event before it can receive points or starting money.
2. A puller receives no starting money or points unless there has been made a measurable pull in a class.
3. No mixing of classes.
4. Classes in a given session will be run in that session, but not necessarily in the scheduled order.
5. Once a puller has scratched from a class, he may not re-enter.
6. If a puller's vehicle breaks in a previous class and cannot make the pull order in the next class or session, the competitor may ask the Track Official for extra time. It is at the Track Official's discretion to allow the puller to drop positions.

D. Weight classes, Weighing and Drawbar measuring procedure

1. On each location there will be a designated area, set up by the track officials, as a tech area, where all vehicles will be routinely teched, the same applies for weighing and drawbar measuring.
2. The weight-bridge must be ETPC approved and big enough to weigh the entire tractor in at one time.
3. All official weights include driver, vehicle with oil, water, fuel, and safety equipment, ready to compete. All drivers must weigh in with the pulling vehicle when it is officially weighed. No vehicles will be allowed past weight-bridge that exceed class weight. No adding fuel or weights unless reweighed. Weighing out is at the discretion of the track officials.
4. All drawbars need to be measured on three to five vehicles prior to hooking. After that time the drawbar can not be altered. A maximum of 100 kg (modifieds<950kg 30 kg) of weight may be moved in either direction.
   No air pressure to be altered in tires after drawbar is measured.
5. Should a puller move more than 100 kg (modifieds<950kg 30 kg) of weight forward from the rear of the tractor, the drawbar can be remeasured before pulling at the discretion of the track officials.
6. Drawbar can be remeasured after pull at the discretion of the track officials.

ETPC WEIGHT CLASSES

Modified	950 kg	2500 kg	3500 kg	4500 kg	5500 kg
Super stock *	3500 kg				
Pro stock *	3500 kg				
Two wheel drive *	2600 kg				
Trucks	8500 kg	10500 kg			
Garden Pullers					
- Stock	350 kg	500 kg			
- Super stock	500 kg				
- Modified	500 kg				
- Compact diesel	600 kg				

NOTE:
All official weights include driver, vehicle with oil, water and fuel, ready to compete.
All drivers must be on the weight-bridge with their vehicles when these are officially weighed in and out.

* must have a minimum of 100 kg movable ballast weight.

DRAWBAR HEIGHT AND LENGTHS		
Class	Max. Height	Min. Length
Super stock & pro stock	500 mm	450 mm
Modifieds <950 kg	500 mm	450 mm
Modified 950 kg	330 mm	150 mm
Two wheel drive	760 mm	450 mm
Trucks	1170 mm	860 mm

Chapter 2:

GENERAL RULES for MODIFIED TRACTORS, SUPER STOCKS, PRO STOCKS, MODIFIEDS <950 kg, TWO WHEEL DRIVES and TRUCKS

A. Brakes

All competing vehicles must be equipped with working rear brakes.

B. Tow-hitch

All vehicles are required to have a tow-hitch on the front of their vehicle. The tow- hitch can extend a maximum of 150 mm ahead of the furthermost front portion of the vehicle (hitch will not be counted in length when measuring the vehicle). The tow-hitch must have a 75 mm diameter hole, preferably positioned horizontally, and be strong enough for pushing or pulling the vehicle at its heaviest weight. The device must not be used for any other purpose.

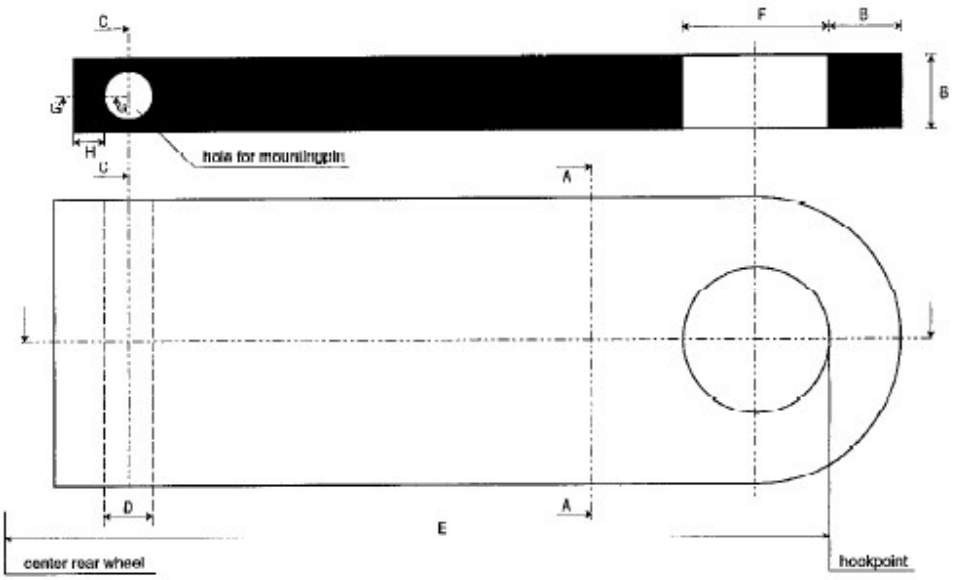
C. Drawbars

1. Drawbars shall be constructed so that in the event of drawbar breakage, the drawbar supports do not pull from a top link or brace above the centerline of the rear axle of the vehicle.
2. A drawbar which can be made shorter than legal length is not acceptable.
3. Drawbars must be rigid in all directions.
4. Drawbars must be parallel to the ground with a tolerance of +/- 10 degrees.
5. Drawbars and hitching devices must be made out of solid steel with a minimum of 520 N/mm2 tensile strength in all weight classes and all divisions. No welding on drawbars.
6. No portion of vehicle may interfere with sled, chain or hook during a pull or while being hooked or unhooked.
7. An area of 150 mm wide and 300 mm high immediately above the drawbar must be free of all obstructions (including weights, stabilizer bars) for easy hooking and unhooking.
8. Drawbars and stabilizer bars must not be connected to each other.
9. The drawbar distance from center of rear axle cannot change during pull.
10. On two wheel drive trucks the hooking point must be the highest point of the hitch/drawbar.

Note: The ETPC highly recommends that a competing vehicle should not be tied down to a tow vehicle through or on the drawbar in any way.

Modified, super stock, pro stock, two wheel drives and trucks:
Vehicles in all classes regardless of divisions, except modifieds <950 kg and gardenpullers, must meet the following:

1. A drawbar must be equipped with a hitching device, minimum thickness 37 mm, and must have a minimum of 75 mm round hole.
2. Drawbars to be a minimum of 1900 mm2 total material (steel) at any point. This includes the area of the mounting pin with the pin removed.
3. The mounting pin must be made of steel with a minimum thickness of 25 mm.
4. The vertical cross section A-A of the drawbar must be a minimum of 1900 mm2, and the horizontal cross section G-G must be a minimum of 1000 mm2 with a minimum of 10 mm of cross sectional thickness between the front of drawbar and the pinhole (H).



Profile A-A (surface)	≥ 1900 square mm
Measure B	= 37 mm
Profile C-C (surface)	≥ 1900 square mm
Diameter mounting pin D	≥ 25 mm
Length drawbar E	≥ 450 mm
Hole hitching device F	= 75 mm
Profile G-G minimum surface	≥ 1000 square mm
Measure H	≥ 10 mm

Illustration 2-1: measurements drawbar big tractors and two wheel drives

Other examples of drawbars are:

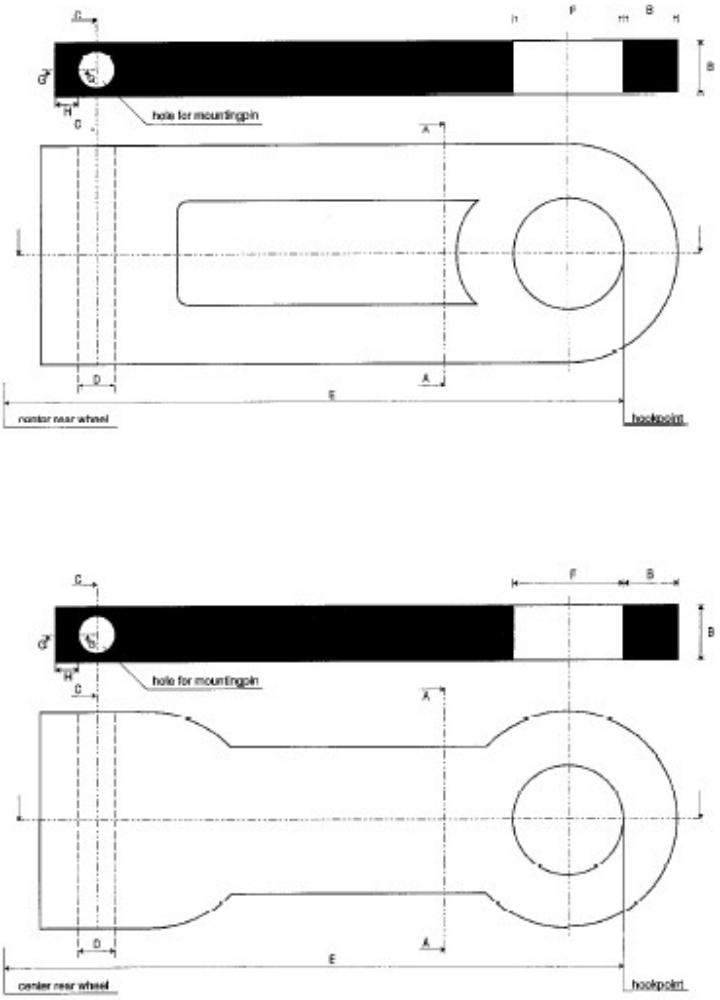
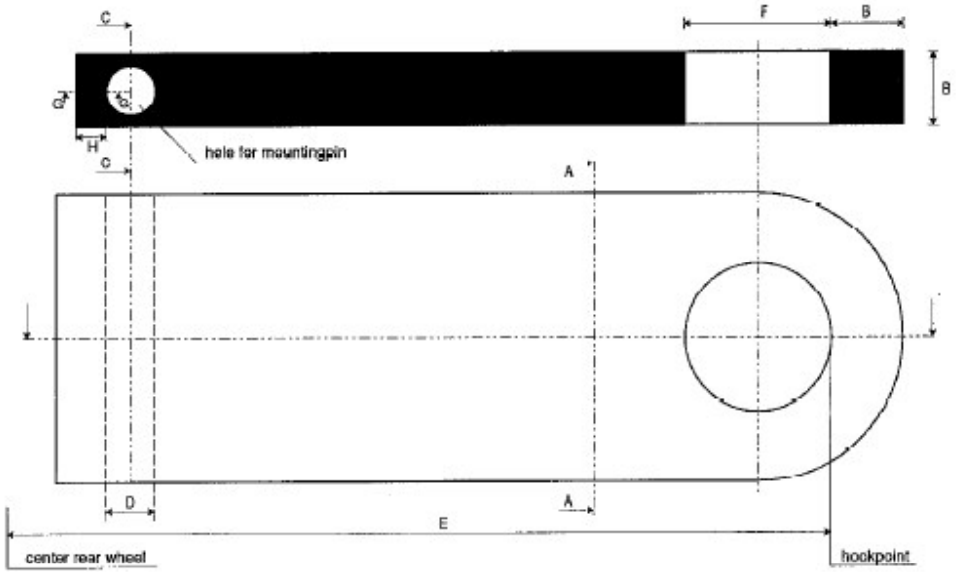


Illustration 2-2: other examples of drawbars

Modifieds <950 kg:

1. A drawbar must be equipped with a hitching device, minimum thickness 25 mm, and must have a minimum of 50 mm round hole.
2. Drawbars to be a minimum of 645 mm2 total material (steel) at any point This includes the area of the pin with the pin removed.
3. The mounting pin must be made of steel with a minimum thickness of 14 mm, or a bolt minimum grade 8.8 with head and secured nut.
4. Drawbar height adjustments bolts to be 130 mm or less from hooking point.
5. The vertical cross section A-A must be a minimum of 645 mm2, and the horizontal cross section G-G must be a minimum of 350 mm2 with a minimum of 10 mm of cross sectional thickness between the front of drawbar and the pinhole (H).



Profile A-A (surface)	≥ 645 square mm
Measure B	= 25 mm
Profile C-C (surface)	≥ 645 square mm
Diameter mounting pin D	≥ 14 mm
Length drawbar E	≥ 150 mm
Hole hitching device F	= 50 mm
Profile G-G minimum surface	≥ 350 square mm
Measure H	≥ 10 mm

Illustration 2-3: measurements drawbar modified <950 kg

Trucks

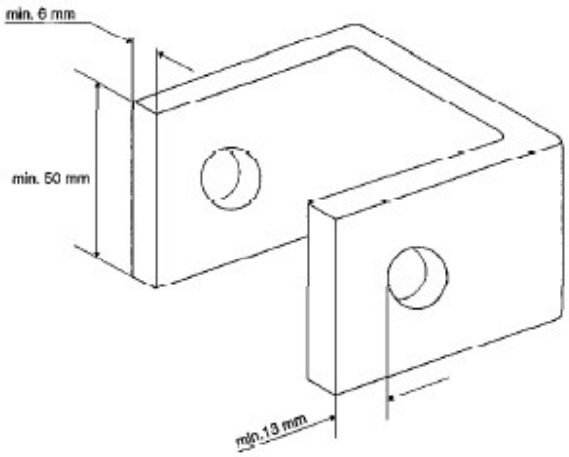


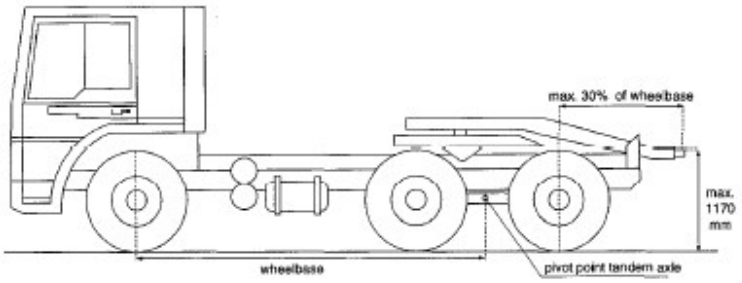
Illustration 2-4: drawbar receiver modified <950 kg

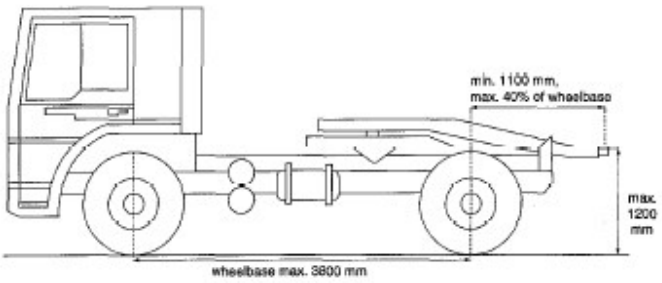
6. The drawbar receiver or the material where the front of the drawbar is attached must have a minimum of 6 mm thick metal on each side of the horizontal mounting pin. There must be a minimum of 13 mm metal remaining where the hole is drilled (see illustration 2-4). Drawbar to be connected to drawbar receiver with a steel pin with minimum of 14 mm, or a bolt minimum grade 8.8 with head and secured nut.

Trucks

1. The hitch needs to be connected to the fifth wheel plate with a king pin/semi-pin.
2. Each vehicle must be equipped with its own hitch and drawbar.
3. No chains or cables permitted as hitch or drawbar.
4 The total length of the drawbar may not be longer than 30% of the wheelbase measured from the center of the front axle to the pivot point of the tandem axle.
5. Fifth wheel plate may be moved forwards 610 mm from pivot point of tandem axle, fifth wheel plate may be moved as far back as pivot point of tandem axle.
6. Drawbar of truck must meet the specifications given for modified tractors.

See also chapter 8





See also chapter 8.

illustration 2-5: drawbarconstruction trucks

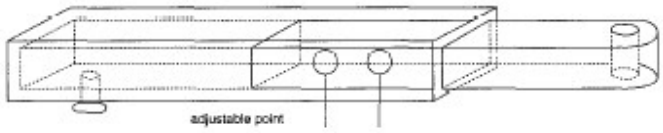


Illustration 2-6: example of truck-hitch and drawbar (with adjustable point)

D. Clutches, flywheels, automatics and protection

1. The use of torque converters or automatic shifts will be permitted.
2. All automatic transmissions must be 360 degrees covered with a steel plate 3 mm thick The steel cover around the torque converter must be covering the total width of the converter and must be at least 10 mm thick, or an ETPC approved blanket must be used. Plate or blanket is to extend from rear of engine block to front of tailhousing. Blanket must be fastened forward securely with two straps on each side, one fastening point above crankshaft centerline, and the other below crankshaft centerline. Blanket must have 150 mm of overlap. Straps must be 50 mm wide with no more than 25 mm spacing between each strap.
   The maximum age of a shatter blanket is five (5) years if not limited to a shorter period by manufacturer. In cases of doubt, it is the competitor's responsibility to prove the age of the blanket.
3. All pulling vehicles using an automatic transmission must be equipped with a positive reverse-gear lockout.
4. All pulling vehicles using a flywheel and/or clutch assembly are required to use an ETPC approved item, producer must be on the manufacturers list of the ETPC Safety Program (see chapter 13 A).
   Only mechanical activated clutches permitted. No electronic, pneumatic or hydraulic device that effects the clutch system allowed. Hydraulic engagement allowed.
   The ETPC will allow homemade flywheel and clutch parts under the following criteria:
   All non-ETPC Safety Program flywheel and/or clutch assemblies must fulfill the following minimum specifications:
   All parts must be made of steel plate or billet steel.
   POSITIVELY NO GRAY CAST IRON.
   Flywheel, pressure plate and pressure plate cover are allowed out of aluminum only wrought (billet) aluminum is adequate for pulling applications if mechanical properties are acceptable.
   A. Minimum mechanical properties (steel and aluminum):
      - Tensile strength 500 N/mm2
      - Yield strength 280 N/mm2
   B. Maximum peripherical speed (rotating speed on the outer diameter of flywheel/clutch component) is 200 m/sec. Is 125 percent of maximum working speed (safety for overspeed).
      This means that maximum rotating speeds (working speed, by 1:1 engine/clutch rpm) are:
      components max. 250 mm (10") diam. = 12000 RPM
      components max. 280 mm (11") diam. = 10500 RPM
      components max. 305 mm (12") diam. = 10000 RPM
      components max. 318 mm (12,5") diam. = 9500 RPM
      components max. 330 mm (13") diam. = 9000 RPM
      components max. 355 mm (14") diam. = 8500 RPM
      components max. 380 mm (15") diam. = 8000 RPM
      components max. 405 mm (16") diam. = 7500 RPM
      components max. 430 mm (17") diam. = 7000 RPM
      components max. 455 mm (18") diam. = 6500 RPM
      components max. 480 mm (19") diam. = 6000 RPM
      components max. 505 mm (20") diam. = 5500 RPM

C. All cap-screws and bolts used in the clutch assembly and to connect flywheel to crankshaft must meet class 10.9 (grade 8) or higher. No weldings and/or chemical milling allowed on any home made parts.

D. Drawings with measurements of all home made major components (flywheel, friction discs, floater plates, pressure plates and pressure plate cover) must always be with the pulling vehicle and be shown upon tech. inspectors request.
A copy of all drawings and the manufacturer report must be send to and stored by the national Tech and Safety board.
Manufacturer report shall include:
- name of all components used, with specification of used material and the mechanical properties (max. yield strength, tensile strength etc.)
- material specification(s) with 3.1 .b certificate, signed by producer.
- all components must have on paper (and stamped in by producer): identification number, producer name and date of produce.
- name of pulling vehicle and type of engine(s).
- max. rotating speed of flywheel/clutch assembly allowed by producer.
- Manufacturer's name (and contact name); address; telephone and fax numbers; e-mail address; name and signature of responsible supervisor; signing date and place; any other appropriate information.

If point A,B, C and D above are fulfilled and according the rules national T&S board in cooperation with ETPC T&S board may give permission to use named flywheel/clutch components.
After written permission, components can be used in ETPC-pulling events.

5. All super stock and pro stock tractors are required to have an ETPC approved shatter blanket 430 mm wide and long enough to wrap around the bell-housing with at least 150 mm overlap; secured with six 50 mm wide nylon web straps with a steel D-ring on one end and sewn the length of the blanket (except for overlap area) and long enough to pass through D-ring and be tied in a saddle clinch; and with four 50 mm nylon web retaining straps each at the front and back of the blanket or an ETPC approved bell housing bolted to a steel engine plate, mm. 5 mm thick, inside the original clutch housing.
6. Super stocks and pro stocks facto-made out of components can also use an ETPC approved bell-housing bolted to a steel-engine-plate, mm. 5 mm thick, instead of a blanket, in this application the use of a complete frame underneath the tractor is mandatory.
Note: For ETPC approved items see Chapter 13.
7. Straps to be separately fastened forward and to the rear of clutch/flywheel assembly All straps must be securely fastened and the blanket must be secured against the rear face of the block.
8. Fixes and/or changes, in whatever form, to shatter blankets may only be done by the manufacturer of the blanket.

9. The flywheel, clutch and pressure plate(s) on all vehicles in all classes must be yearly inspected and approved by a board member of the affiliated organisations of the ETPC before first pull in current season. Approved components will be marked with a stamp and are subject to inspection at all times. Clutch inspection forms and photos including certificates of passed X-ray/ultrasonic/Magnaflux test of weldings in homemade bellhousings, certificates of conformity and age of shatter blankets, age documents of fire suits, cross section drawings of turbines, certificates of cables around engine block (for 6+8 mm cables) and current season's tech inspection forms have to stay with the pulling vehicle and be shown upon Tech Inspector's request.
10. All modified tractors, two wheel drive trucks and trucks are required to have a complete closed flywheel/clutch protection made of steel with the following minimum specifications A, B or C:
    A. An ETPC approved factory-made bellhousing:
    Note: For ETPC approved items see Chapter 13.
    A1. The inspection/maintenance hole in the protection shall not extend further forwards at its top edge than flush with the cross-shaft hole. The length of the inspection hole shall be no more than 215 mm and it must not be more than 100 mm wide (measured in a straight line), and the hole shall be smoothly and fully radiused to produce an oval shape (see illustration 2-7).

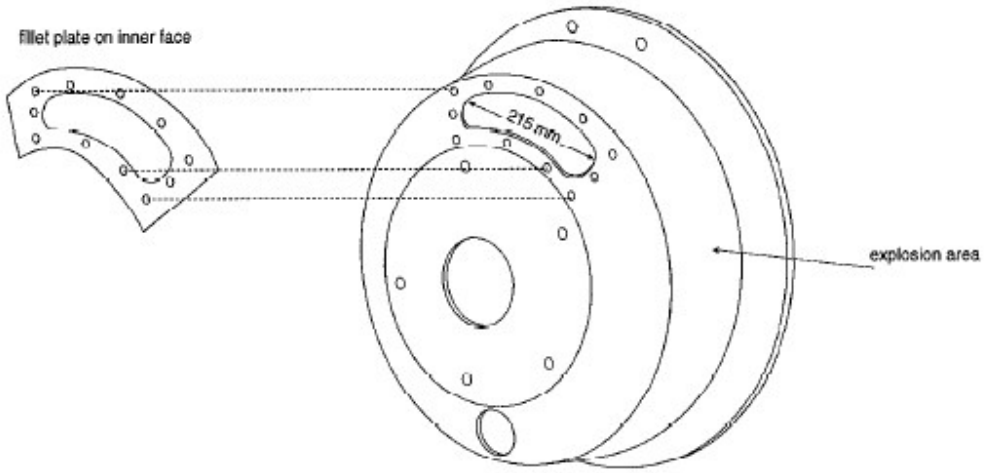


Illustration 2-7: bellhousing with inspection/maintenance hole

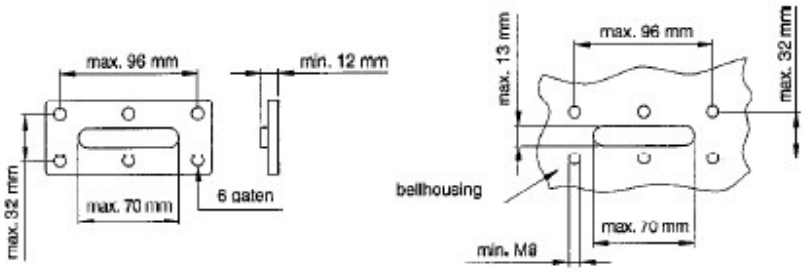


Illustration 2-8: measurements bellhousing-adjustment slot and cover

A2. There shall be twelve (12) M8 grade 8.8 or better cap screws securing the cover the bellhousing.
The cover must have a plate or fillet that flush inside of the housing.
The cover and fillet must be steel. The fillet must be flush to the inside.
A3. The bellhousing must be flush on the inside surface.
A4. Titanium bellhousings permitted by the NTPA are acceptable.
A5. ETPC approved bellhousings with stand adjustment slot are acceptable (see illustration 2-8).
A6. Fixes and/or changes, in whatever form, to bellhousings may only be done by approval of manufacturer. No weldings on factory-made bellhousings.
B. A homemade one-piece protection (minimum of 10 mm thick steel) is allowed on the following conditions:
B1. It must be tested using X-ray, Magnaflux or ultrasonic method.
Test certificates of the weldings must be available to prove their appropriate quality, otherwise an ETPC approved shatter blanket with a minimum width of 380 mm is required around this protection.
Magnaflux, ultrasonic or X-ray testing may be carried out by any company who can give a written certificate that the weldings are appropriate.
B2. Protection must be flush on the inside surface.

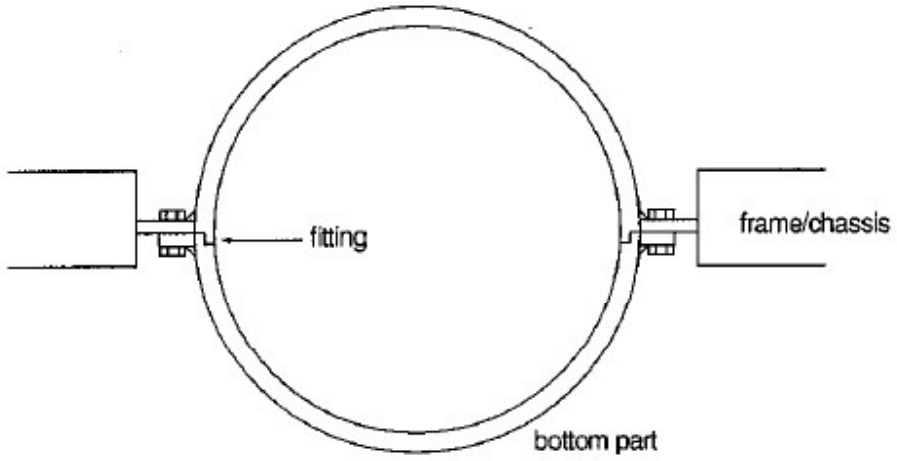


Illustration 2-9: two-piece protection

B3. No inspection/maintenance hole or stand adjustment slot or any other opening allowed.
B4. Tube covering explosion (or rotating) area of clutch/flywheel combination must be seamless and flush on the inside.
B5. The ETPC recommends no grinding of the weldings.

C. Trucks using a combination of engine, clutch and gearbox behind each other without a connecting shaft are, under the following conditions, allowed to have a two-piece protection:
C1. No inspection holes. Material and thickness like alternative B.
C2. The top part of the protection must be securely fastened to the frame.
C3. The bottom part of the protection must be securely fastened to the top part with M12 grade 8.8 bolts with a maximum spacing of 5 cm.
C4. The connection must flush on the inside surface.
C5. Any other alterations must be approved by the ETPC board or affiliated organisation board.

11. All bellhousings less than 10 mm thick (explosion area) must use a 4130 chrome molybdene liner minimum 2,3 mm thick.
12. Liner is secured to the bellhousing by drilling and tapping a single 6 mm hole through bottom of clutch can Liner must cover rotating area of clutch/flywheel combination and must be flush on the inside surface Stand adjustment slot in the liner is acceptable when it is smaller then it is in the bellhousing.
13. The ETPC recommends no openings in bellhousings.
14. All automotive type engines with bellhousing and clutch will run a full block plate either a commercially available unit or minimum 5 mm steel or minimum 6 5 mm aluminum with five (5) M10 grade 8 8 bolts and nuts evenly spaced on the bottom part of the bellhousing and four (4) additional M10 grade 8.8 bolts and nuts between existing bolts on top half of bellhousing to fasten the bell- housing to block saver plate
15. No chemical milling allowed except when factory-made.

E. Aviation, marine and industrial engines

1. On aviation, marine and industrial engines in truck and tractor pulling applications where a gearbox is used between the engine crankshaft and the clutch,
the gearbox output shaft must not exceed two and half times (2,5:1) the speed of the crankshaft. Max. crankshaft speed 3000 rpm.
   - No torque converters are allowed behind the gearbox.
   - The shaft that accepts the flywheel must be made of solid billet steel, and mm. 57 mm thick, to be heat treated 4140 steel, 30 to 38 Rockwell C, DIN 42 Cr Mo 4NC Mo 140, 300 to 380 Brinell HB.
   - Clutches are limited to a maximum diameter of 11 inch (maximum 12,5 inch allowed if in the ETPC manufacturers list, see Chapter 13 A on page 13-1.

2. On aviation, marine and industrial engines in truck and tractor pulling applications with the clutch mounted on the crankshaft, the shaft or adopter which
   accepts the flywheel must be made of solid billet steel, with the same specifications as rule in E 1.
   - Nonproprietary clutches are limited to 11 inch.
   - ETPC approved clutches are acceptable to 12.5 inch.
3. Bellhousings or protections must be bolted to an engine plate with a minimum of twelve (12) M10 grade 8.8 bolts evenly spaced around bellhousing or protection.
   Engine plate to be 6 mm steel plate or greater, or 10 mm aluminum plate or greater.
   The plate to which the bellhousing is bolted must be securely fastened to the engine by at least eight (8) M10 bolts grade 8.8. When using a gearbox between engine and bellhousing or protection, the plate to which the bellhousing is bolted must be securely bolted to the frame with at least eight M10 bolts (four on each side of the frame).
   If using a single rail design, the 6 mm plate on the front of the bellhousing must be securely fastened to the frame with eight (8) Ml 0 grade 8.8 bolts (four on each side of the frame).
   Any other alterations must be approved by the ETPC or affiliated organisation board.
4. Onboard auxiliary power units (engines) used to charge the (main) engine during a pull not allowed (Hyper bar system).
   An onboard auxiliary power unit is only allowed for unhooked driving or start applications.
   Named units must be disconnected during pulling attempt

F. Turbine engines

1. Any turbine engine that exceeds 8000 rpm on the output shaft shall not be allowed to use a clutch/flywheel assembly, or an automatic transmission.
2. The exhaust pipe on any turbine must extend a minimum of 150 mm above the top of the exhaust opening (see illustration 2-10).
3. No turbine engine will be operated beyond original manufacturer's temperature and rpm limits and no exceeding of manufacturer's maximum governor specifications is allowed.

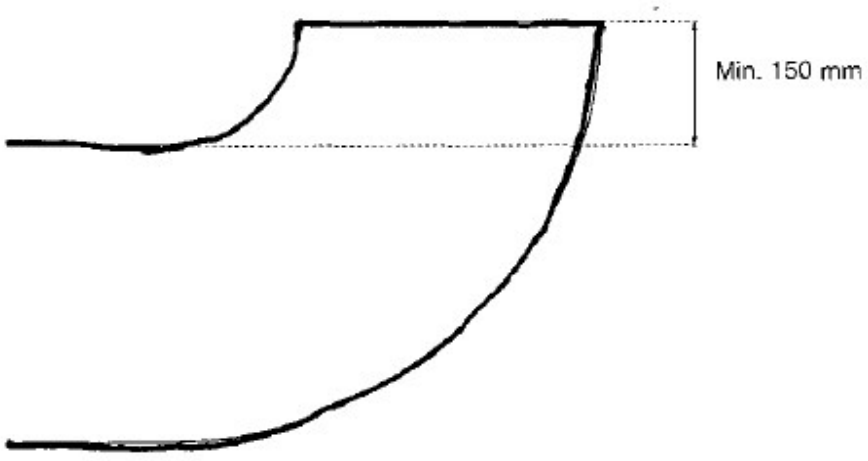


Illustration 2-10: turbine exhaust

4. All turbine air intakes shall be screened with metal screen having openings no larger than 5 mm in diameter
5. All turbine engines must have a minimum of 10 mm steel shroud, those in excess of 1500 horsepower a minimum of 12 mm, steel shroud that surrounds the engine with all joints securely fastened. The steel shroud must incorporate a minimum of 6 mm thick flanges that extend radially inward a minimum of 25 mm on both ends of the shroud. A minimum of 12,5 mm gap between the engine and the ID of the flange must be maintained for air circulation inside the shroud.
6. Turbines without the above-mentioned steel shrouding require a steel/kevlar protection:
   - internal steel shroud of 0.5 mm minimum (or 2 mm aluminum minimum) as close as possible around the engine.
   - 30 layers of 328-weave Kevlar 29 (or Twaron with the same specifications)
   - the protecting blanket must be long enough to wrap around the engine with at least 150 mm overlap and be secured with nylon straps underneath the engine.
   - blanket must be installed around the engine in the rotation direction of the turbine-wheels.
   - turbine blankets must be completely covered with min. nine (9) straps.
   - straps must be stitched side by side on to the blanket-surface cloth (bag). straps must be at least 50 mm wide and have a min. strength of 25.000 Newton.
   - first and last strap max 10 mm from side of blanket.
   - with blankets dated before 2006 it is allowed to use additional straps between the existing straps total strength of straps must be at least 200.000 Newton.
7. All turbine shieldings must extend a minimum of 13 cm and 25 cm aft of the turbine section. With engines where the shielding cannot be fitted in the above size because of exhaust pipe position the required standard should be reached as close as possible (i.e. the minimum lengths for a RR Gnome: 45 cm, Isotov TV2: 58 cm, Isotov TV3: 51 cm, Turbomeca Turmo III: 53 cm and T53-L-11: 48 cm). Engines with a return free power shaft through the engine must have an extra connection from engine to exhaust pipe section.
   A technical description of this connection must be approved by the Tech and Safety Board.
8. Exhaust stack diameter to be no smaller than 25,4 mm of engine outlet.
9. Rotation speed must be detected on turbine shaft closest possible to the engine, rotation speed signal detection on powered shafts or gearboxes is not allowed.
   This is for all serial and additional speed control devices.
   Two separate overspeed protection devices for power turbine wheel[s] are required.

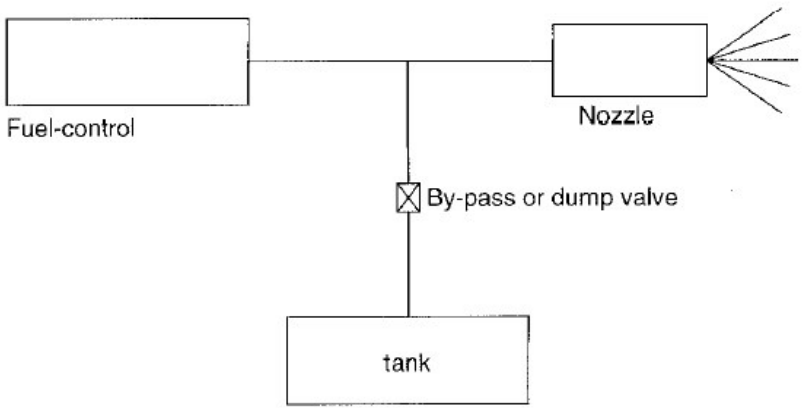


illustration 2-11: overspeed shutdown on turbine-engines

9.1. Overspeed shutdown-consisting of speed monitor activating a normally closed solenoid valve located between fuel control and fuel manifold is required. Trip setting to be low enough to prevent overspeed in event of driveline failure. Each turbine must have two independent fuel-shut-off valves.

Alternatively, this device can be an additional by-pass valve, which is mounted between fuel control and the fuel nozzles in the burners. The by-pass valve must be large enough to allow the maximum fuel consumption quantity to go into the tank with low pressure. On turbines with two fuel steps, the by-pass valve has to be mounted in the first step

9.2. Original (helicopter, aircraft etc.) power turbine speed limiter/constant power turbine speed governor and/or factory-mounted overspeed shutdown.

10. No homemade turbine engines are allowed. i.e. rebuilding, assembling or overhauling of turbine engines may only be done by certified turbine repair facilities, this is definitely NOT a do-it-yourself job.

11 a. No lycoming T-55-L-11 orTF-35 or Napier Gazelle turbines allowed as competition engines.

b. No new vehicles with one-shaft turbine engine(s).

c. Turbine engines over 2500 Take Off power not allowed in tractor pulling

12. Teams planning to build or to import turbine-powered pulling vehicles must send the technical information, including a cross-section drawing and the logbook(s) of the turbine engine(s) to the Technical Committee of their national organisation and the Tech and Safety Board.
13. Any new turbine vehicle must be approved before it is allowed to compete at any level at any event.
14. Turbine engines are subject to spot checks during any pulling event. The following inspections must be made before a turbine vehicle is allowed to compete:
    a. overspeed
    b. the shielding of the turbine wheels
    c. the position of the shut-down solenoid
    d. the engine(s) must be started and the kill switch tested
    e. a yearly boroscopic inspection of the hot section of each installed engine must be performed by ETPC approved turbine inspector before the first pull in the current season.

15. It is highly recommended to warm up turbine motors before pulling.
16. Each turbine team must always keep an engine registration book with the tractor. This book will be provided by the ETPC and is made by the Turbine Tech Team in co-operation with the pulling team.
    This book contains:
    - engine main performance
    - governor speed settings
    - description of overspeed protections
    - maintenance schedule
    - engine trend check record (filled in by the team)
    - engine operating time record (filled in by the team)
    - calendar of inspection schedule (filled in by the team)

    This book must always be shown upon request to the ETPC Tech and Safety Board or the Turbine Tech Team.
17. For safety reasons, all vehicles are highly recommended to use auxiliary power for all unhooked driving. The following conditions apply to turbine vehicles wanting to drive unhooked on direct turbine engine power:
    a. unhooked driving is only allowed when using max 200 HP with the engines, the remaining engines may be started only after the vehicle has been hooked to the sled.
    b. the following areas must be checked and inspected before the vehicle in question is allowed to compete:
        * a stand-still test must take place: the driver must be able to hold the tractor immovable with all engines running in gear at normal idle speed
        * the driveline brake (free power brake): a check for cracks must be done. Any failure or malfunction or any other technical problems on the brake system(s) will automatically mean disqualification for that day.
18. Turbine engines may start in gear only after hooked to the sled
19. Turbine vehicles are allowed to have starter motor onboard, or an auxiliary power unit to be carried onboard and running during a pulling attempt, but the named units must be disconnected from the drive train during the attempt.
20. The use of steel brake calipers instead of aluminum is highly recommended by the ETPC.

G. Driveline and Driveline shielding

A. General

1. Drivelines should be guarded with 8 mm steel plate or 10 mm aluminum. 2 All modified and minipuller engine/automatic transmission combinations must have two front motor mounts, two rear motor mounts and a support saddle for rear of transmission, with 13 mm maximum clearance;
   or
   Two front motor mounts, support saddle at rear of engine with 13 mm clearance and a mount at rear of transmission (this is to prevent engine or transmission from dropping if breakage occurs).

3. The use of universal joints in drivelines is forbidden in all classes except trucks.
4. Drive-shafts longer than 1270 mm must be fitted with safety-loops made out of steel (8 mm) or aluminum (10 mm).
   Two safety-loops per part of the driveshaft, to be securely connected to the frame.

B. Trucks

1. Universal joints on driveshaft must be shrouded 360 degrees with 8 mm steel or 10 mm aluminum.
2. Drive shafts longer than 1270 mm must be fitted with safety loops made out of 8 mm steel or 10 mm aluminum.
   Two safety loops per part of the drive shaft, to be securely connected to the frame.

C. Driveline Brake Shielding

1. Maximum peripherical speed (rotating speed on the outside edge of disc) for any driveline brake is 200 m/s (meters per second).
   This means that the allowed maximum speeds are as follows:
   Discs with 280 mm (11") diameter: 13500 rpm
   Discs with 305 mm (12") diameter: 12500 rpm
   Discs with 330 mm (13") diameter: 11500 rpm
   Discs with 355 mm (14") diameter: 10500 rpm
   The maximum disc speed must be calculated from the formula: (max. engine rpm) multiplied by (reduction ratio). With turbine engines, the formula is: (max. free power rpm + 20%) multiplied by (reduction ratio). Turbine tractor teams must show the engine manufacturer s original manual with all technical specifications including rpm upon Tech Inspector's request.
2. All driveline brakes with max. 280 mm (11") disc must be shielded with at least 10 mm steel, 360 degrees around all brake components (including caliper), and both ends must be closed with 4 mm, or thicker, steel.
3. All driveline brakes with a disc larger than 280 mm (11") must be shielded with at least 12 mm steel, 360 degrees around all brake components (including caliper), and both ends must be closed with 4 mm, or thicker, steel.
4. The maximum driveline brake diameter is 355 mm (14"). Rotating brake parts must be made out of mild steel (no alloy steel allowed) with the following minimum properties: tensile strength 414 N/mm2, yield strength 275 N/mm2.
5. The diameter of the disc center hole must be at least 200 mm smaller than the outside diameter of the disc.
6. Shields consisting of two parts may only be used on the following conditions (drawing see rulebook Chapter 2, par. D, rule 10, alternative C):
   - no inspection holes
   - the top part of the protection must be securely fastened to the frame
   - the bottom part of the protection must be securely fastened to the top part with M12 grade 8.8 bolts with a minimum of 3 (three) bolts on each side and a max distance of 40 mm between each bolt
   - the connection must be flush on the inside surface
   - any other alterations must be approved by the ETPC Tech and Safety Board.

   It is also allowed to use a one piece bellhousing as protection of driveline brakes as defined in the rulebook Chapter 2, par. D, rule 10, alternatives A and B).

7. The ETPC highly recommends brake calipers made of steel instead of aluminum, as well as locating them in the bottom part of the driveline brake housing.

D. Crossbox Shielding

1. All new crossboxes are required to be a min. 10 mm billet aluminum or 8 mm steel thickness around circumference of rotating gears.
2. Any older crossbox less than min. specified thickness may use the following shielding methods to achieve total thickness requirement:
   a. wrap crossbox radially 360 degrees with webbed , tow strap type material to achieve min. 10 mm total thickness of crossbox.
   b. wrap crossbox radially 360 degrees with steel strap to achieve min. 10 mm total thickness of crossbox. Strap to be min. 4 mm steel.

H. Chassis

1. Modified tractors with frame bolted to transmission: the frame shall also be bolted to axle housing to prevent splitting of tractor. Must be of sufficient strength to support the weight of the tractor in the heaviest class being entered with bolts removed from the plate of transmission or rear end.
2. All tractors shall have wide front axles. Front wheels shall track with the rear wheels.
3. The frame must be out of one piece from rear axle to front axle.

I. Engine shielding

1. A deflection shield is required on both sides of all engines. Shield must extend the complete length of block casting and be securely fastened. It is to be made of aluminum or steel, minimum thickness 2 mm. On modified tractors with turbocharged diesel engine(s), a 2 mm steel/aluminum protection behind the engine(s) is mandatory. Shields must be solid. Motor mounts, filters, steering rods, etc., can not serve as part of shield. Solid frame rails with no holes can serve as part or all of shield, providing it covers required areas of block casting. It is recommended that a quick release fastener be used (winged Dzus type or cotter pin type hood pins). Use of bolts with nuts, screw locks are discouraged. (reason: ease of access in case of emergency-fire, run off, etc).
2. Shielding on all pro-stock and super stock in line engines must be from sheet metal (hood) to 50 mm below bottom center of crankshaft throw, and be securely fastened. They may be louvered, but no expanded metal. Fastening of hood and side shielding must be strong enough to keep them in place in case of an explosion.
   All tractors with an inline engine are required to have an additional inner side shield consisting of 3 mm thick steel or titanium or 6 mm aluminum inside the current 2 mm steel/aluminum side shields with a minimum of 12 mm air gap. The shield is independent of the current sideshields and must be attached to the vehicle chassis (frame) with a minimum of 8 mm fasteners at both ends and center on the bottom.
   At deck-height the shield can be bolted solid with 8 mm fasteners or using a mm 8 mm chain to the engine-block at both ends.
   This shield must extend from the bottom of the head (top of block) and extend to 50 mm below bottom-center throw of crankshaft.
   Shield must extend full length of the block on both side of the engine.
3. Starter motors, fuel filters, oil filters and fuel injection pumps may not be used as shielding. Shielding may cover or pass behind starter or fuel pump.

4. Shielding on all V or Y type engines (including marine, aircraft, super stock and pro stock types) must extend from base of head or the uppermost point of piston, travel to 5 cm below bottom center of crankshaft throw, and be securely fastened.
5. Piston powered aircraft, industrial or marine engines must have a minimum of 3 mm thick shield. This may be in one or two layers.
6. Side shields must be mounted independently of the engine block. Motor mount, block saver plate and header mounting, or chassis mounting is acceptable.
7. Shielding on modified tractors using in-line engines shall be from the bottom of head (top of block) and extend to 50 mm below bottom center throw of crankshaft.
8. On multiple engined tractors with in-line engines if starter ring is used between engines, the starter ring must be covered 360 degrees, and both ends closed with 6,5 mm steel or greater to be securely fastened.
9. All engines equipped with a harmonic balancer, balancer shall be solid steel, to be of the following minimum mechanical properties:
   - Tensile strength: 500 N/mm2
   - Yield strength: 280 N/mm2

   Shrouded 360 degrees with 10 mm steel to be no more than 25 mm away in any direction of rotation and to be securely fastened. Harmonic balancers shall be connected with a steel bolt, grade 8.8, on the crankshaft. Instead of the above, a high performance harmonic balancer may be used.

   All sorts of balancers must have a steel shield or restraint to prevent the balancer from being thrown out of the tractor.
10. All engine fans must be shrouded 360 degrees, with steel 2 mm or thicker, electric fans excluded.
11. All other rotating motorparts must be shielded with 2 mm steel.
12. On radial engines the cylinder heads must be 360 degrees covered with a shielding of 5 mm thick aluminum, wide enough to cover the cylinders.
13. All turbocharged inline engines and all turbocharged diesel engines must have one steel cable totally surrounding the engineblock and head. This cable must be placed between first and second cylinder (from front of tractor) through exhaust-port area.
    a. Cable must be min. 10 mm thickness (8 mm with certificate from manufacturer: min. 600 kg force).
    b. Cable ends must be connected together with D-lock.
    c. Cable must have approximately 100 mm of slack.

    Diesel engines with single-type cylinder heads need a steel bar with a minimum thickness of 12 mm, this steel bar must extend from first to last cylinder head and be connected to each one of them.
14. Air cooled Continental engines must have cable to connect cylinder-heads to engine-block.
    - All cylinder-heads must have steel eye to connect the cable.
    - Cable must be connected to the block on both ends (back and front).
    - Min. 8 mm cable and mm. 8 mm fasteners.

J. Engine throttles

1. All pulling vehicles must be equipped with a deadman's throttle. All throttles working in a forward-rearward direction shall be closed in the rearmost position. Must be positive, two way, mechanical linkage. All foot throttles must have a toe strap. No hydraulic throttle linkage allowed.
2. All injection or butterfly shafts on engines must have dual return to idle arms and springs, one on each side. All diesel engines will have a visible return-to- idle spring on fuel injection pump lever
3. No computers allowed that control any mechanical operation of the competing vehicle. RPM-limiters are exempt of this rule.
   No automated or computer controlled or operated traction control devices.
4. Computer controlled electronic fuel management allowed.

K. Exhaust systems

1. All exhaust pipes must discharge vertically. Height to be a minimum of 305 mm above the bend in the pipe which discharges vertically measured from the top of the pipe to bottom of bend (see illustration 2-12).
   All exhaust pipes must be securely attached.
   Vertical is defined as being within 10 degrees, in any direction of being in plumb. Rain caps may not be used.
   No megaphone pipes are allowed. Venturi type headers are acceptable.

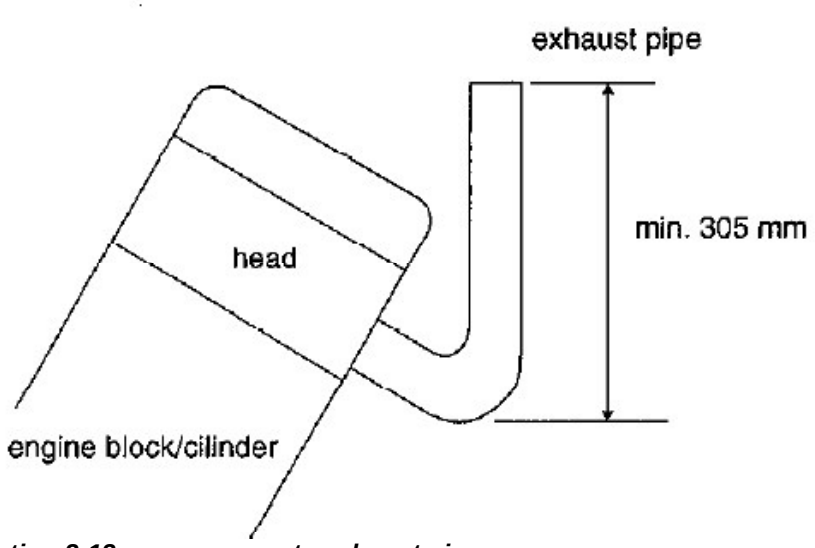


Illustration 2-12: measurements exhaust pipes

2. Turbocharged engines must have two M10 grade 8.8 bolts through exhaust pipe(s) in vertical portion of exhaust pipe(s). Bolts are allowed to be welded through pipe(s). Head of bolts must remain for inspection. Bolts to be installed 90 degrees to each other, within max. 25 mm of each other.
   All pulling vehicles with an exhaust-pipe over 95 mm diameter must have extra cross in exhaust-pipe, rotated 45 degrees from the first cross.
   Both crosses closest possible to each other.

3. All diesel engined vehicles competing at indoor pulls must be equipped with demountable (for clearing purpose) exhaust extension which will discharge all exhaust horizontally rearwards at a point vertically above the hitching device, at a height of 3.000 mm from the ground to center of extension pipe. Maximum diameter of extension is 200 mm. Rear end of extension must protrude rear- wards a minimum of 610 mm from rear brace holding extension. All diesel smoke pipes used at indoor pulls must be 150 mm higher in the rear than in the front.
   The exhaust extension and the pin must meet the specifications given in the drawing.
4. All exhaust systems used during indoor pulls must be secured. Excessive leakage or exhaust systems that collapse and do not fall off are cause for disqualification, unless caused by smoke collector on the sled.
   The pin on the end of the extension must have a hole for a safety pin.

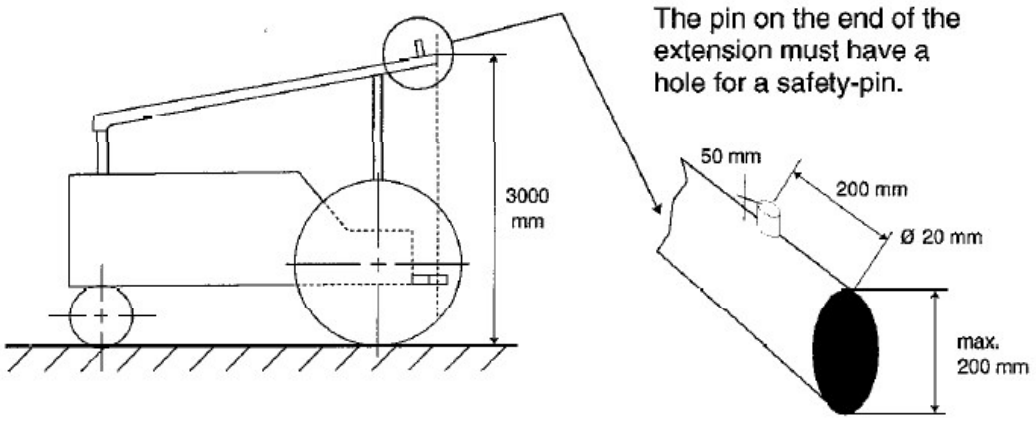


Illustration 2-13: measurements exhaust extension at indoor pulls

L. Fuel and Fuel containers

1. Legal fuels are alcohol, diesel fuel, petrol, aircraft and turbine fuel, methyl- alcohol. Oxygen carriers and combustion accelerators are illegal. It is allowed to inject water into the engine.
   Diesel fuel is defined by the ETPC as a pure hydrocarbon.
   The ETPC will evaluate diesel fuel using the dielectric constant value. That value shall be determined by the ETPC-approved fuel check meter only. The fuel check meter shall use cyclohexane to establish the zero reference point for determing all diesel fuel dielectric constant values.
   Diesel fuel to be used in ETPC sanctioned events shall have a dielectric value of no greater than 4.9, nor a value of no less than 2.0.
   The use of additives containing oxygen, such as nitro methane, propylene oxide, dioaxane, MTBE, alcohol or nitrous oxide, are strictly prohibited. These additives, and others of the oxygen-bearing family, will significantly change the dielectric constant value of any diesel fuel. Diesel fuel with dielectric constant values that fall outside the ETPC-standards will not be allowed for use in ETPC competition.
2. ETPC officials or officials from affiliated organisations can check fuel at any time during any event.

3. No pressurized fuels are allowed except LPG in manufacturer's vessel with a stamp of the date of exposure.
4. Trucks must have a separate fuel tank which contains a maximum of 50 liters between the chassis rails. The original fuel tanks may contain only water.
5. No fuel tanks, fuel pressure gauges, fuel pumps and/or fuel lines allowed in the driver's compartment. If the fuel tank is located behind the driver, a fire barrier is highly recommended from front to rear of compartment beneath the driver s seat between fuel line and driver Minimum width of fire barrier equal to width of driver's seat.

M. Kill switches

1. All kill switches must be mounted independent of drawbar and/or stabilizer bars.
2. All pulling vehicles must have an automatic ignition kill switch and/ or air shutoff, in working order at all times. The kill switch device must also work in a situation where the electric circuit of the vehicle is interrupted. Every kill switch must generally work according to the Fail Safe principle, that is, no situation whatsoever may cause the kill switch go out of function. Track Officials and/or Tech Inspector have the option of checking kill switches as many times as they feel adequate at any event. Switch must be checked with engine running or with Buzz Box only if supplied by puller.

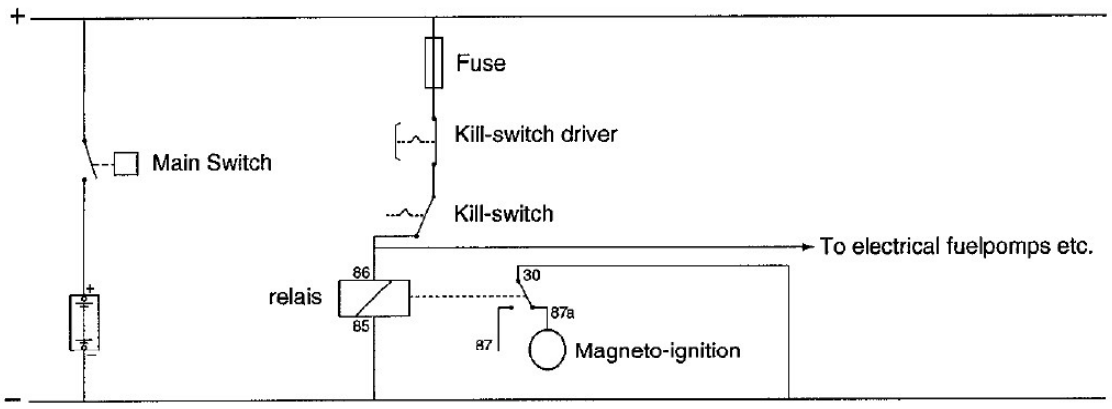


Illustration 2-14: fail-safe kill-switch

3. The kill switch on all modified, super and pro stock tractors must be located in the rear center of the vehicle (maximum of 150 mm off center in any direction) 1200 mm above the point of hook.

3a. The kill switch on two wheel drives must be located in the rear center of the vehicle (maximum of 150 mm off center in any direction) 940 mm above the point of hook.

4. The kill switch on modifieds <950 kg must be in the rear center (maximum of 150 mm off center in any direction) 450 mm above the point of hook.
5. The kill switch on trucks must be in the rear center (maximum of 150 mm off center in any direction) 530 mm above the point of hook.

6. On spark ignition engine(s) the kill switch must break or ground the ignition circuit. On vehicles equipped with spark ignition engines and electric fuel pump(s), the kill switch must also break the current to the fuel pump(s). On engines with electronic ignition, the ignition system must have a positive (+) connection through the kill switch.
   On engines with magneto ignition, the ETPC highly recommends an auxiliary relay per ignition circuit that shortcuts the ignition to ground when the kill switch is activated. The relay coil must have a direct ground connection and a positive (+) connection through the kill switch. All engines can be connected to one kill switch contact.

Note: This kill switch interpretation is a recommendation; if it is possible to comply with the rule in another way, this is allowed - contact the ETPC before applying other solutions.

7. On a diesel, the kill switch must activate the air shut-off required on all diesel engines. A cable may be used for this purpose, but the flaps must have a spring-loaded closing mechanism.
   A system to be deemed acceptable must at least prevent building of boost. A hole with a maximum diameter of 25 mm in the flap is allowed. It is recommended that a gasket/seal arrangement be used to shutoff the air flow more effectively. All diesel engines must be equipped with an emergency shutdown air shut-off at the air intake that can be utilized from the driver's seat. On diesels with an electric kill switch system, the solenoids that hold the flaps up must have positive (+) connection through the kill switch. Use of solenoids or electric motors that need voltage in order to activate the flaps is not allowed. Also, systems that need air pressure to activate the kill switch are not permitted.
8. The break-away kill switches must have attached to them a minimum of 50 mm diameter ring. The cable from the sled will be attached to this ring. Kill switch ring or cable 'ring' must be secured with a nylon tie wrap (1/8 inch). The tie wrap must be broken for a re-pull. ETPC and affiliated organisations will supply the tie wraps for uniformity.
9. If a vehicle has a kill switch or shut off in legal position, and during the pull the kill switch is pulled and the nylon strap is broken and the presiding official inspects and finds the switch capable of operating properly under normal conditions, the vehicle will be allowed to re-pull immediately, or drop six positions. The decision to drop must be made before vehicle leaves the track.
   It is the puller's responsibility to see that the kill switch is working.
10. The force which is necessary to pull the kill switch must be not more than 10 kilo.
11. All ignition engines must have bar type master shut-off switch for all motors in working order within easy reach of driver.
    Diesel and fuel-injected engines with ignition must have a fuel shut off valve control within easy reach of driver (on diesel engines fuel shut off valve on diesel pump will do) All diesel engines must be equipped with an emergency shutdown air shut off at the air intake which can be utilized from the drivers seat.
12. On turbine tractors, there has to be a spring on each engine to close the fuel valve.
13. On-board batteries must be securely fastened and properly covered to prevent any sparks. Especially, any possibility of them getting into contact with kill the switch cable from the sled must be avoided.

N. Safety

1. If Track Officials and/or Tech Inspector feels a vehicle is unsafe, they have the right not to allow the vehicle to pull.
2. All pulling vehicles must be equipped with a minimum of one 1.5 kg fire extinguisher (yearly checked with certificate) fully charged, in working condition, and within easy reach of the driver.
3. Government-approved full-face helmets are mandatory. All drivers in all divisions must wear helmets with chin strap fastened when pulling.
4. The use of a fire suit (including gloves, socks, headsocks, leather shoes) is mandatory for all drivers in all classes. Fire suits must meet the following requirements:
   - A minimum of one layer fire suit of Nomex 3 or equivalent. Note: For two wheel drives see chapter 7.
   - Nomex or equivalent fabric underwear is highly recommended with the use of any fire suit.
   - The maximum age of a Nomex fire suit is six (6) years, of other suits two (2) years, in cases of doubt it is the competitor's duty to prove the age of the suit.
   - Suits must have the possibility to tie collar, sleeves and legs. If leather boots are used fire-socks are not mandatory.
5. Officials can ban from competition any vehicle at any event if they believe that the vehicle has a potential safety problem.
6. The ETPC recommends the use of Tech Inspection stickers on all tractors, the best location is on the left front portion of tractor.
7. Driver must be seated on the vehicle when his/her engine or engines are being started and running and must have complete control of the vehicle at all times. Anytime an engine is being started or running, steering wheel must be installed and securely attached to steering-shaft.
8. A reverse safety light system is required on all pulling vehicles.
   A white light, minimum 50 mm in diameter, must be mounted directly above or below the safety kill switch at the rear of the vehicle.
   A white light, minimum 50 mm in diameter, in the driver's compartment must be operated by the same system. Both lights are to be activated by the gear-shift lever in such way that it will be lit only when the vehicle is in reverse.
9. All pulling vehicles must have a neutral gear. They must be equipped with a starter interrupter switch on the gearshift, which will allow starter engagement only in neutral gearshift position.
10. The use of a safety belt with a fast draw-latch for fast release is highly recommended in all classes without Roll Over Protection (ROP).
    In all classes with ROP the use of a 4-point seatbelt-assembly or better is mandatory. The seatbelt-assembly must be attached to the roll cage.
11. Helpers on the track must wear protective clothing with long sleeves. The use of light protective clothing is allowed (eg. flame retardant cotton, overaged fire suit or welding overall).

O. Seats and fenders

A. Big Tractors

1. All tractors must have a strong and rigid seat; all tip seats must be securely fastened while pulling. All seats must have side rails that are a minimum of 100 mm above the edge of the seat, must extend a minimum of one-half the distance from the back of the seat to the front edge. If fenders are 150 mm or greater above the seat, and are 150 mm or less from the seat, no seat side rails are required.
2. All super stock and pro stock tractors must have a shield between driver and tire, (not necessarily a fender) to consist of a solid barrier between driver and any part of the rear tires to be able to sufficiently support weight of driver. The barrier must be a minimum of 150 mm wide at the bottom, increasing to a minimum of 910 mm wide at the top and the barrier must curl a minimum of 150 mm from vertical out over the tyre in the same configuration as the tire.
3. All modified tractors are required to have fenders or a shield or both between driver and any part of the rear tire. Must curl a minimum of 150 mm from vertical out over the tire in the same configuration as the tire. Fenders or shields must be able to support weight of driver. Rear fenders may not extend more than 250 mm rearwards from the back of the rear tires.

B. Modifieds <950 kg

1. Fender to consist of barrier between driver and tire. Fender to be a minimum of 25,4 mm over height of tire, fender to curl 100 mm horizontally from vertical edge over the tyre, in the same configuration as the tire, minimum length 460 mm at the top of the fender. Must be able to support the weight of the driver. Rear fenders may not extend more than 250 mm rearwards from the back of the rear tires.
2. Fenders or shield must be constructed so that when the driver is seated and the hands are on the wheel, he cannot touch the rear tire with any part of his body.

P. Stabilizer bars

A. All tractors except modified <950 kg

1. Stabilizer bars are required The drawbar and drawbar assembly will not in any way be attached to the stabilizer bar assembly.

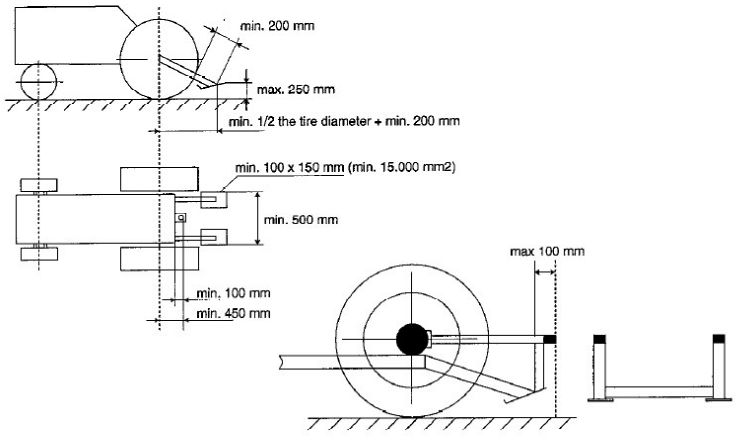


Illustration 2-15: measurements stabilizer bars, bumper and hitch big tractors

2. On modified tractors where the hitch and wheelie bars must be connected to the same frame, the wheelie bars must be fastened at least 100 mm ahead of the hitch (see illustration 2-15).
3. The stabilizer bar will extend a minimum of 810 mm behind a line drawn from the center of the wheel to the ground. The stabilizer pad must not be more than 250 mm of the ground. The stabilizer pad must be a minimum of 15000 mm2 at ground contact point, min. width 100 mm, mm. length 150 mm. A minimum of 500 mm will be allowed from outside of one pad to the other. Stabilizer bars are not be mounted in any way to the drawbar (see illustration 2-15).

B Modifieds <950 kg

1. Stabilizer bars are required. The drawbar and drawbar assembly will not in any way be attached to stabilizer bar assembly. This device is to have wheels or a skid plate. Wheels are to be at least 25 mm wide and 130 mm in diameter. Skid pads to be at least 10.000 mm2 at ground contact point (see illustration 2-16).
2. Wheels or skid pads to be a minimum of 1/2 the tire diameter length +100 mm, max. +150 mm, when measured from rear axle centerline to rear of pad. Pads to be no more than 150 mm above ground. One skid pad or wheel is to be on each side of tractor, and the minimum distance from outside edge of one pad/wheel to outside edge of the other is 400 mm (see illustration 2-16).

Note: For all classes: The stabilizer bar system must be able to support the weight of the vehicle in the heaviest class pulled. Jacking up the pads so tractor is completely off the ground will be a good test.

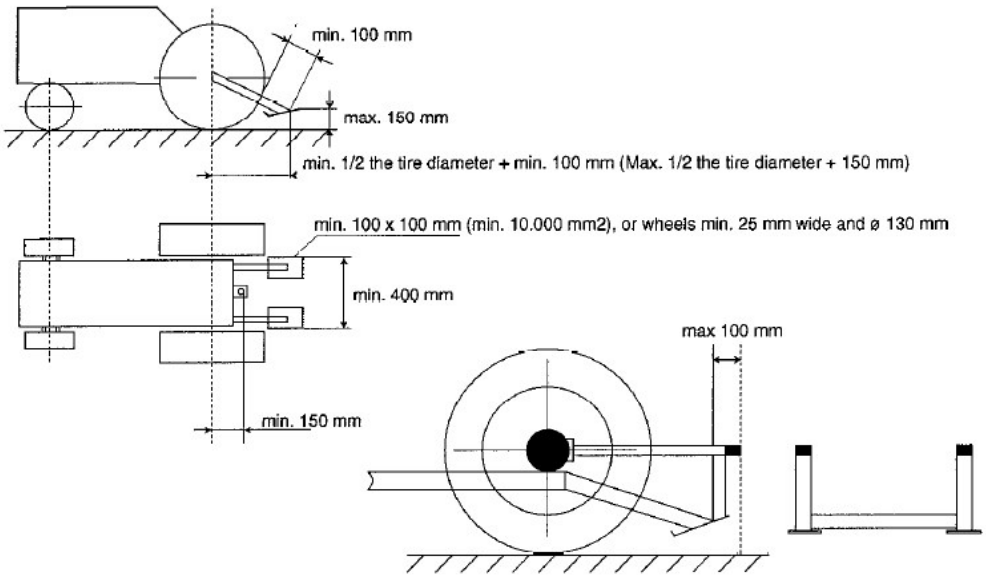

min. 100 mm
max. 150 mm
min. 1/2 the tire diameter + min. 100 mm (Max. 1/2 the tire diameter + 150 mm)
min. 100 x 100 mm (min. 10.000 mm2), or wheels min. 25 mm wide and ø 130 mm
min. 400 mm
max 100 mm
min. 150 mm

Illustration 2-16: measurements stabilizer bars, bumper and hitch modifieds <950 kg

The ETPC highly recommends the use of bumpers on all tractors to prevent them from passing over the buckboard of the sled.

Q. Roll Over protection

A roll over protection cage is mandatory in all classes except the two wheel drive and trucks. For details see Chapter 14: Roll Over Protection.

R. Supercharger/turbocharger

1. All turbochargers must be completely shrouded (360 degrees), except for inlet- and exhaust pipes with steel 2 mm or thicker. The shielding must ensure that no wheels or other parts of the turbo can come out in case of a turbo explosion.
   - The shielding must be mounted as close as possible to the turbo, at mm. four (4) points.
   - Hood construction or grille can not be part of the shielding.
   - By super stock and pro stock tractors, open bottom (max. 90 degrees) of the shielding is allowed under the following conditions:
     - Must have a complete closed hood construction.
     - Turbo shielding must extend at least 50 mm below the bottom of the turbo.
   - Exhaust-pipe thickness must be min. 1.5 mm from turbo to vertical part of exhaust pipe and securely mounted to the turbocharger outlet flange
2. On radial engines all turbochargers/turbocompounders must be shrouded with 6 mm thick steel covering the turbo wheel. Exhaust pipes must be connected to engine block to prevent rotating There must be a support to connect turbo compounder shrouding to engine or frame, made of flat steel minimum 40 mm wide and minimum 4 mm thick to prevent shrouding from moving.
3. All intercoolers located outside of normal engine shielding must be shielded with steel 2 mm thick or greater.
4. All supercharger/blower drive components must be shrouded on the top and sides with 2 mm steel or aluminum the shield to be wider than the drive belt or chain and securely mounted. Blower shield to be wider than all components, idler belt, pulleys, etc. Billet blower pulleys are mandatory, no cast pulleys allowed.
5. All carbureted or injected aviation, industrial or marine engines using a centrifugal supercharger must be shielded. Shielding will be the same on each side of supercharger. Shield to start centerline of supercharger housing and extend 100 mm rearwards, only allowing notching to fit around inlet motor with a maximum of 210 mm long. Shield to extend 100 mm forward of centerline of blower housing and notching only for accessory components (such as air boxes). On front edge of shielding there will be a rolled lip extending inward 25,4 mm. Shield will be 10 mm thick, made of steel or light metal with the following specifications: Din AL Mg Si nr 6082 360 degrees around supercharger housing with a maximum of 50 mm between shield and supercharger housing.
   The shielding can only be made out of two pieces when the connection is made behind the chassis of the tractor and fit together with four bolts M10 grade 8.8 on both sides. Shield must maintain its integrity (see illustration 2-17).
   No fuel lines between protection and supercharger.

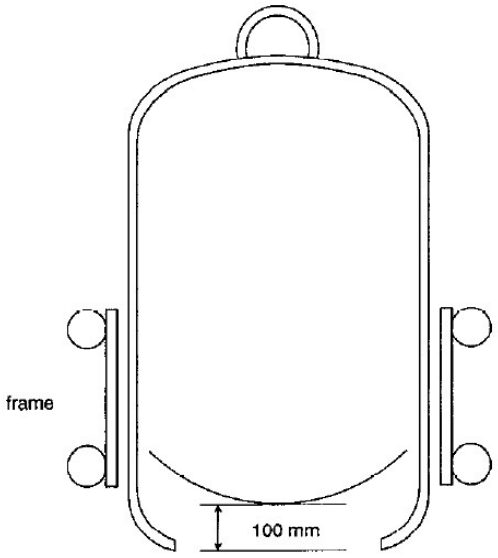


Illustration 2-17: supercharger shielding

6. A supercharger of the type used on Rolls Royce Griffon has to be shielded with 10 mm St52. Shielding will be the same on each side of supercharger. Shield to start centerline of supercharger housing and extend 100 mm rear- wards, engine air inlet should also be covered. Shield to extend 100 mm forward of centerline of blower housing and notching only for accessory components (such as air boxes). On front and back edge of shielding there will be a rolled lip extending inward 25,4 mm. Shield will be one piece 10 mm thick, made of steel 52.3 with the same thickness around supercharger housing with a maximum of 50 mm between shield and supercharger housing. Titanium not allowed as protection. Shield on bottom part must be open and shall extend 100 mm further than the bottom part of the supercharger. The shield must on the in- and outside mounted to the frame with a minimum of four (4) bolts M14 grade 8.8. There must be a minimum of 20 mm material remaining around the drilled holes. Modifieds with a single frame in the middle must have a sub frame made out of tubular steel with a minimum of 70x70x4 mm, mounted to the frame to connect the outside of the shielding and must have two straps (new safety belt) with steel connections from topside shielding to top front engine bracket mounting. Shield must maintain its integrity The front and the back of supercharger housing to be covered with a minimum of 6 mm steel or light metal with the following specifications: Din AL Mg Si nr. 6082. Holes only allowed for boost control and boost control connection and throttle linkage.
   Front and back shielding to be connected on rolled lip with M8 bolts no more than 75 mm apart on each side. There is 20 mm of space allowed around air intake housing and wheel case.
   Fuel lines inside the shielding are basically not permitted However those fuel lines that have to be inside the supercharger shielding must be separately protected with steel tubes or shields whose minimum thickness is 2 mm.
7. Allison blowers must have a steel shield as described in rule 5 from this chapter, or a ETPC approved shatter blanket.
8. Screw-type blowers and variable multi-speed supercharger devices are not permitted in tractor pulling applications.

9. All engines using a blower on top of the engine must use ETPC approved blower restraints. Restraint system shall consist of four separate straps one (1) on each corner of blower, with each strap securely fastened to the engine by means of its own attachment bracket. The top attachment bracket to sandwich between the lower surface of the injector body and the upper surface of the blower case. The bottom attachment bracket for each strap shall be connected to the engine by a minimum of one (1) M6 bolts or studs (8.8 or better) at the bottom of each strap on all four corners. All blowers must be mounted to the air intake manifold by use of aluminum studs only.
   The maximum age of the blower restraints is at most six (6) years depending on the manufacturer's warranty, in cases of doubt it is the competitors duty to prove the age of the restraints.
10. On all pulling vehicles the tubing on the pressure side of a turbocharger or supercharger to the intake must be under the hood or shield or be bolted or strapped securely.
11. The ETPC highly recommends the use of a burst panel on charged engines.
12. Titanium turbo-wheels are not allowed in all classes.

S. Tyres

1. Contests open to pulling vehicles with rubber tyres. No four wheel drive allowed.
2. No dual tyres, tyre studs or chains permitted through the wheels.

Modifieds (>950 kg) and super stock

1. A limit of 30,5 inch or 800/65 mm is put on the width of tyres.
2. Rim diameter limited to 32 inch on tyre widths over 24,5 inch (width determined by manufacturer's size).
3. The use of Trelleborg tyres 700-38 and Taures tyres 800-32 is permitted.
4. For tyres with measurements 30.5-32 (800/65R32) en 24.5-32 (700/75R32) the maximum circumference is 5.400 mm, if inflated to 0,7 bar (10 psi). Some Firestone Puller 2000 tyres (first production, not HP marked) are a bit over the 5.400 mm circumference. This type is only permitted if bought by competitor before january 1, 2004. Must have written approval from ETPC Tech and Safety Board or affiliated national organisation.

Modifieds <950 kg

1. Tyres are limited to 16 inch rim size.
2. Maximum width of lugs to be no wider than factory manufactured 18.4 x 16.1 tyres.

Pro stock

1. Maximum rim size 38 inches.
2. Maximum tyre size with 38" rim: 580/70R38 (20.-38);
   with 34" rim: 620175R34 (23.1-34);
   and with 32" rim: 650/75R32 (24.5-32).

Two wheel drives

1. Maximum tread width (ground contact patch) 18 inch (18.4x16.1 maximum).

Trucks

1. Tyres must be road-use approved and available to the public.
2. Dual wheels and dual tyres must be used on rear axles.
3. No farmtype, floatation, bar or single tyres permitted on rear axles
4. Split rim or wedge lug type wheel allowed.
5. Maximum tyre size 12.00 x 20.
6. If original tread pattern is used cutting of tyres is allowed

Note: For all other size tyres permission from ETPC Tech and Safety Board or affiliated organisation board is necessary

Tyre/rim Safety Warning

A tyre/rim assembly may burst with explosive force causing serious injury or death if

- *35 psi (2.5 kp/cm2) cold inflation pressure is exceeded*
- *the rim is welded without the tyre first being removed*
- *the tyre is drilled or screwed onto the rim*

T. Weights

1. No weights may not extend rearwards beyond rear tires.
2. All weights must be securely fastened.
3. Any ballast lost while hooked to the sled and under the green flag will be cause for disqualification (internal breakage excepted).
4. The use of movable weights or movable weight carrier is not permitted.

Chapter 3:

SUPER STOCKS

A. Chassis

It shall consist of the following:

1. Engine block must remain in original location as located by manufacturer.
2. The only engines that are considered legal to be used in Super stock class are those that are available as farm tractors with front wheel steering.
3. The stock transmission housing or manufacturer's replacement and the stock final drive housing or manufacturer's replacement.
4. Tractors with cast tube (belly) type frame (e.g. Oliver, Cockshutt, White, Case, Fendt) are allowed to remove the complete frame from front of transmission housing. Engine and clutch housing to remain in original location and mounted solid as intended by original manufacturer.
5. Planetaries are considered part of final drive and are not removable.
6. The OEM engine block of given brand to remain consistent with that brand of transmission and rear housing as well as sheet metal. It cannot be modified externally, except for normal repair or for mounting of fuel injection equipment.
7. Internal webbing and water jacket must remain intact with provisions to rebore engine block.
8. One (1) deckplate with a maximum thickness of 40 mm between bottom of cylinder head and top of engine block is allowed on OEM engines smaller than 8850 cc (540 c.i.). Maximum allowance of 3,3 mm total gasket.
   No deck plates may be utilized on OEM engines larger than 8850 cc (540 c.i.).
   No plates allowed between cylinder head (jug assembly) and crankcase.
   (i.e. Deutz, Minneapolis-Moline etc.). Replacing cylinders allowed.
9. An external hold down device is allowed to hold head to block. This device connects the top of head to bottom of block, and must remain behind side shields.
   Note: This device does not replace the safety cables, which must remain in place.
10. Any alterations to the chassis shell must have the written approval of the ETPC Tech and Safety Board and/or national Tech and Safety Board, before the tractor in question will be considered legal.
    Note: The criteria used by the Board will be the retention of stock appearance.
11. All engines must be secured and held rigid to OEM chassis. Engine cannot move independent of rear end/transmission housing.
12. The chassis and frame must remain stock from the rear of the engine block to the rear of the tractor.
13. The grill may be altered to allow air intake, but not totally removed.
14. The clutch housing, transmission case, rear end housing and axle housing must be OEM with no aluminum replacements.
15. No auxiliary internal combustion engines are allowed on board to drive pumps, accessories etc.
16. One piece engine main cap bearings allowed.
17. The use of a spacer between engine block and clutch housing is allowed with a maximum additional thickness of 35 mm. Aluminum spacer plate can not be part of the clutch protection.

18. **The ETPC will allow component tractors in the super stock class under the following criteria:**
    a. Must install an one-piece frame extending from front of tractor to rear axle housing with an ETPC approved bellhousing (chapter 2 point D) to replace the original clutch housing. Must also install an aftermarket transmission and rear end to replace the original equipment transmission and rear end/final drive housing. No cast iron agriculture type transmission or rear end component allowed.
    b. Drawbar and roll-cage must be part of the frame structure.
    c. Engine block of given brand to remain consistent with that brand sheet metal.
    d. Engine location of component super stock tractors: centerline of the crankshaft may be below the centerline of rear wheels but must be parallel to the ground +/- 2 degrees. From centerline of rear wheels to center height of front of crankshaft max. drop of 75 mm.
    Frame must be parallel to the ground +/- 2 degrees. This equals approximately 100 mm of fall from centerline of rear wheels to the 2900 mm wheelbase point. This to be measured with tyres, hitch and weight in ready-to-pull position.
    e. All engines in component super stock tractors to be mounted no farther forward than 1524 mm (60 inch) measured from the centerline of the rear axle to rear of the engine block.
    f. Crankshaft centerline to be between top and bottom main rail of frame.
    Bottom of main rail maybe no more than 150 mm. below centerline of crankshaft from rear of engine to front axle.
    g. All tube ladder-type frames must be covered on the outside with steel or aluminum 2 mm thick and run in the same plane as the crankshaft.
    h. Appearance to remain stock of given brand and model.
    i. Driveline shielding same as in Modified tractor rules.
    j. All component tractors can run a maximum of 2900 mm wheel base, with a maximum overall length of 4000 mm from center of rear wheel to forward- most point.
    k. The constructions of all component tractors must be pre-approved by national tech inspectors. All dimensions must be measured and, together with pictures, be on a file and signed before the vehicle is allowed to compete. This file has to stay with the tractor and it must be shown upon Tech Inspector's request.

B. Frame/sheet metal

1. Tractor must have hood and grill in place as intended by the manufacturer.
2. It is allowed to update the sheet metal of a super stock tractor to the latest model made by the manufacturer as long as that body is still in the program.
3. Sheet metal to be stock length and in stock location.
4. Tractor must retain stock appearance
5. The distance from the center of the rear axle to that part of the hood that is farthest forward must be the same length as that model of the upgraded sheetmetal.
6. Wheelbase rule will apply according to the original chassis, not to the model of the upgraded sheet metal.
7. Maximum of 2900 mm wheelbase unless originally produced with longer wheelbase, in which case stock length must remain. Maximum length of 4000 mm from center of rear wheel to forwardmost point including weights and weight racks.
8. Super stock chassis rules A: 1-10 above will apply according to the original chassis, not to the model of the upgraded sheet metal.

C. Frame options

1. Tractor must have either
   a. safety tie bars made out of steel mounted to rear axle housing with at least four (4) axle housing bolts and extending forward of flywheel area and fastened to side of engine block or main frame with at least three (3) 14 mm steel bolts grade 8.8. (See illustration 3-1)

   or

   b. a one piece frame extending from front of tractor to rear axle housing mounting bolts.

   or

   c. a divisible frame under the following conditions:
      - The steel split-frame construction must extend from front of tractor to rear axle housing mounting bolts.

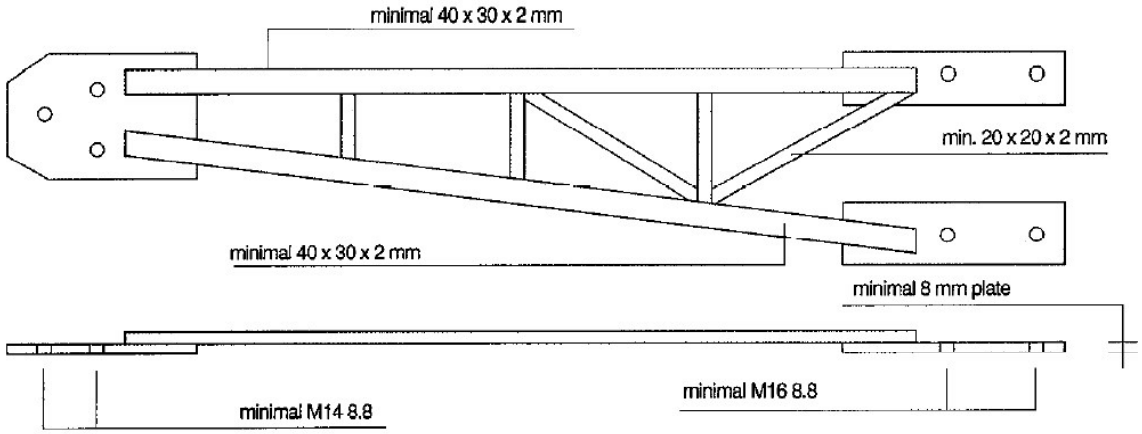


Illustration 3-1: safety-frame construction super stock

- The two pieces have to fit in one other (sliding in construction) in the area where the tractor can be split (clutch area).
- The two pieces of the frame must be made of tubes or u-shaped steel with a thickness of at least 3 mm.
- If the frame is made of u-shaped steel it must have a u-shaped connection bar inside min. 500 mm length (250 mm in the rear part and 250 mm in the front part of the u-shaped split frame).
- If the frame is made out of tubes it must have inner tubes mm. 500mm length. (250 mm in the rear part and 250mm in the front part of the tube- frame).
- Rear part of the frame has to be mounted to rear-axle housing with at least four (4) axle housing bolts and extending forward of flywheel area and fastened to side of engine block or motor-plate with at least three (3) 14mm bolts min. grade 8.8.
- Two parts of frame must be locked together with at least two (2) fasteners of 8 mm steel.
- Two piece frame must be of sufficient strength to support weight of tractor with the bolts used to split the tractor removed.

2. Tie bars or frame must be of sufficient strength to support weight of tractor with the bolts used to split the tractor removed.

D. Engines

1. Super stock class limited to 10.650 cc (650 c.i.)
2. Engine block must be available as OEM-part from parts counter.
3. All turbo charged engines must have a cable totally surrounding the engine block and head. See chapter 2, par. I, point 13 for details.
4. Super stocks are limited to 3 (three) pressure stages with a maximum of 4 (four) turbo chargers.
5. Super stock tractors are limited to 2 (two) valves per cylinder, except if particular tractor model is equipped with a four valve engine it is allowed to use the OEM head on diesel engines.
6. Conversion from 4-stroke into 2-stroke principle is allowed on diesels only.

E. Clutches

1. Only mechanically activated clutches are permitted. Hydraulic engagement is allowed.
2. Clutches and clutch protections as chapter 2 point D.
3. Component super stock tractors must use an ETPC approved bellhousing or steel protection (chapter 2, par. D, point 10 a or b).

F. Shatter blankets

1. Shatterblankets must be on the inside of the tiebar or onepiece frame and the tiebar must be fastened forward of the rear of the engine block. However, in some occasions there is no space for the blanket inside the tiebar or the onepiece frame, in that case a written approval from ETPC or affiliated organisation must be available to Tech Inspectors.

G. Firewall/deflection shield

1. There must be a steel deflection shield between driver and engine from top of hood to top of torque tubes or transmission or clutch housing from side shield to side shield, minimum 2 mm thick. All turbocharged alcohol tractors must have this protection made out of stainless steel with a minimum of 2 mm thicknes. The shield(s) also serve(s) as a flash fire shield.

H. Starting chemicals

1. All ether bottles (or starting aids) must be placed outside of engine compartment.

I. Onboard fire control systems

1. Super stock tractors that require tools for removal of side shields must be equipped with an onboard firecontrol system. Onboard system nozzles must be in engine compartment.
2. Super stock tractors utilizing onboard fire extinguishing system must place one nozzle on each side of engine, inside the engine compartment. Not to be attached to the sheetmetal.

J. Legality

1. If the ETPC or national organisation doubts the legality of any entry, or upon protest by another contestant in that class, contestant in question must verify that 150 units of the tractor in question have been manufactured (notarized statement from the manufacturer), furnish parts numbers, and prove to the Board's satisfaction that the tractor is legal.

K. Pro stocks in super stock class

1. Pro stock tractors are allowed to compete under their own class rules and regulations in the super stock class.
   Pro stock tractors not allowed to run both super stock and pro stock class.

Chapter 4:

PRO STOCKS

A. Chassis

It shall consist of the following:

1. The stock engine block or OEM engine block that will operate with the stock crankshaft for that model without any alterations for chassis mounting.
2. Engine block must remain in original location as located by manufacturer.
3. All engines must be secured and held rigid to OEM chassis. Engine cannot move independent of rear end/transmission housing.
4. The stock transmission housing or manufacturer's replacement and the stock final drive housing or manufacturer's replacement. Planetaries are considered part of final drive and are not removable.
5. The OEM engine block cannot be modified externally, except for normal repair or for mounting of fuel injection equipment.
6. Internal webbing and water jacket must remain intact with provisions to rebore engine block.
7. A deck plate between the bottom of the cylinder head and the top of the engine block is allowed. The maximum distance between the centerline of the crankshaft and the top of engine block including deckplate and gasket-material is 410mm.
8. Any alterations to the chassis shell must have the written approval of the ETPC and the national Tech and Safety Board (TSB), before the tractor in question will be considered legal.
9. The chassis and frame must remain stock from the rear of the engine block to the rear of the tractor.
10. The only vehicles that are considered legal in pro stock class are those that are available as farm tractors with front wheel steering.
11. The clutch housing, transmission case, rear end housing and axle housing must be OEM, with no aluminum replacements.
12. One piece engine main cap bearings allowed One piece main cap not considered a girdle.
13. The use of a spacer between engine block and clutch housing is allowed with a maximum additional thickness of 35 mm. Aluminum spacer-plate can not be part of the clutch protection.
14. The ETPC will allow component tractors in the pro stock class under the following criteria:
    a. Must install an one-piece frame extending from front of tractor to rear axle housing with an ETPC approved bellhousing (chapter 2 point D) to replace the original clutch housing. Must also install an aftermarket transmission and rear end to replace the original equipment transmission and rear end/final drive housing. No cast iron agriculture type transmission or rear end component allowed.
    b. Drawbar and roll-cage must be part of the frame structure.
    c. Engine block of given brand to remain consistent with that brand sheet metal.

d. Engine location of component pro stock tractors: centerline of the crank shaft may be below the centerline of rear wheels but must be parallel to the ground +I 2 degrees. From centerline of rear wheels to center height of front of crankshaft max. drop of 75 mm.
   Frame must be parallel to the ground+/- 2 degrees. This equals approximately 100 mm of fall from centerline of rear wheels to the 2900 mm wheelbase point. This to be measured with tyres, hitch and weight in ready-to-pull position.
e. All engines in component pro stock tractors to be mounted no farther forward than 1524 mm (60 inch) measured from the centerline of the rear axle to rear of the engine block.
f. Crankshaft centerline to be between top and bottom main rail of frame. Bottom of main rail maybe no more than 150 mm. below centerline of crankshaft from rear of engine to front axle.
g. All tube ladder-type frames must be covered on the outside with steel or aluminum 2 mm thick and run in the same plane as the crankshaft.
h. Appearance to remain stock of given brand and model.
i. Driveline shieldings same as in Modified tractor rules.
j. All component tractors can run a maximum of 2900 mm wheel base, with a maximum overall length of 4000 mm from center of rear wheel to forward- most point.
k. The constructions of all component tractors must be pre-approved by national tech inspectors. All dimensions must be measured and, together with pictures, be on a file and signed before the vehicle is allowed to compete. This file has to stay with the tractor and it must be shown upon Tech Inspector's request.

B. Frame/sheetmetal

1. Tractor must have hood and grill in place as intended by the manufacturer.
2. Sheetmetal can be upgraded to present manufacturer by approval of ETPC and national TSB.
3. Sheetmetal to be stock length and in stock location.
4. Tractor must retain stock appearance.
5. The distance from the center of the rear axle to that part of the hood that is farthest forward must be the same length as that model of the upgraded sheetmetal.
6. Wheelbase rule will apply according to the original chassis, not to the model of the upgraded sheetmetal.
7. Maximum of 2900 mm wheelbase unless originally produced with longer wheelbase, in which case stock length must remain.
   Maximum length of 4000 mm from center of rear wheel to forward-most portion including weights and weight racks.

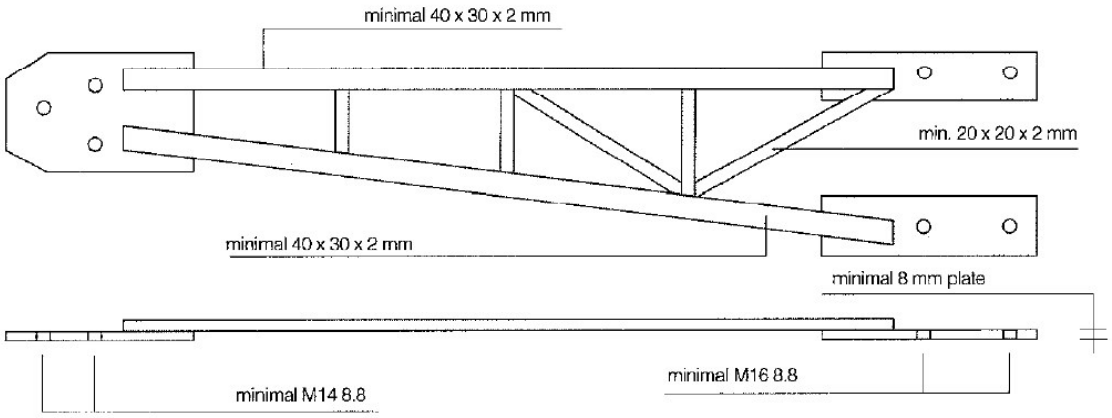


Illustration 4-1: safety-frame construction pro stock

8. Pro stock chassis rules A: 1-8 above will apply according to the original chassis, not to the model of the upgraded sheetmetal.

C. Frame options

1. Tractor must have either
   a. safety tie bars made out of steel mounted to rear axle housing with at least four (4) axle housing bolts and extending forward of flywheel area and fastened to side of engine block or main frame with at least three (3) 14 mm steel bolts grade 8.8. (See illustration 4-1)

   or

   b. a one piece frame extending from front of tractor to rear axle housing mounting bolts.

   or

   c. a divisible frame under the following conditions:
      - The steel split-frame construction must extend from front of tractor to rear axle housing mounting bolts.
      - The two pieces have to fit in one other (sliding in construction) in the area where the tractor can be split (clutch area).
      - The two pieces of the frame must be made of tubes or u-shaped steel with a thickness of at least 3 mm.
      - If the frame is made of u-shaped steel it must have a u-shaped connection bar inside min. 500 mm length (250 mm in the rear part and 250 mm in the front part of the u-shaped split frame).
      - If the frame is made out of tubes it must have inner tubes mm. 500mm length. (250mm in the rear part and 250mm in the front part of the tube- frame).
      - Rear part of the frame has to be mounted to rear-axle housing with at least four (4) axle-housing bolts and extending forward of flywheel area minimal M16 8.8 minimal M14 8.8 and fastened to side of engine block or motor-plate with at least three (3) 14mm bolts mm. grade 8.8.
      - Two parts of frame must be locked together with at least two (2) fasteners of 8 mm steel.
      - Two piece frame must be of sufficient strength to support weight of tractor with the bolts used to split the tractor removed.

2. Tie bars or frame must be of sufficient strength to support weight of tractor with the bolts used to split the tractor removed.

D. Engines

1. Pro stock class limited to 8364 cc (510 ci.)
2. All turbo charged diesel engines must have a cable totally surrounding the engine block and head. See chapter 2, par. I, point 13 for details. 3 Pro stocks are limited to one (1) pressure stage and allowed to have one air compressing device.
4. Engine head must be OEM agricultural type for that brand engine.
5. Only two valves per cylinder allowed, if particular tractor model is equipped with a multi-valve (more than two) head engine, it is allowed to use this OEM- engine with OEM-head if the engine is not more than 7300 cc.
   Downsizing engines not allowed.
6. Pro stocks may have one (1) fuel injection pump of any size, only one (1) pump element per cylinder allowed.
   If using OEM (available of parts-counter) 12 cylinder fuelinjectionpump two (2) pump-elements per cylinder allowed.
7. Diesel fuel only. Water injection and/or intercooler allowed. Use of gasohol and/or alcohol is prohibited.
8. No overhead cams allowed.
9. Conversion from 4-stroke into 2-stroke principle is not allowed.

E. Clutches

1. Only mechanically activated clutches are permitted. Hydraulic engagement is allowed.
2. Clutches and clutch protections: see chapter 2, par. D of this book.

F. Shatter blankets

1. Shatterblankets must be on the inside of the tiebar or onepiece frame and the tiebar must be fastened forward of the rear of the engine block. However, in some occasions there is no space for the blanket inside the tiebar or the onepiece frame, in that case a written approval from ETPC or affiliated organisation must be available to Tech Inspectors.

G. Firewall/deflection shield

1. Steel deflection shield between driver and engine from top of hood to top of torque tubes or transmission or clutch housing from side shield to side shield, minimum 2 mm thick. This also serves as a flash fire shield.

H. Starting chemicals

1. All ether bottles (or starting aids) must be placed outside of engine compartment.

I. Onboard fire control systems

1. Pro stock tractors that require tools for removal of side shields must be equipped with an onboard firecontrol system. Onboard system nozzles must be in engine compartment.
2. Pro stock tractors utilizing onboard fire extinguishing system must place one nozzle on each side of engine, inside the engine compartment. Not to be attached to the sheetmetal.

J. Legality

1. If the ETPC or national organisation doubts the legality of any entry, or upon protest by another contestant in that class, contestant in question must verify that 150 units of the tractor in question have been manufactured (notarized statement from the manufacturer), furnish parts numbers, and prove to the Board's satisfaction that the tractor is legal.

K. Pro stocks in super stock class

1. Pro stock tractors are allowed to compete under their own class rules and regulations in the super stock class.
   Pro stock tractors not allowed to run both super stock and pro stock class.

Chapter 5:
MODIFIEDS (>950 kg)

1. Modified tractors are those using any combination of engine(s), transmission(s) and final drive.
2. No portion of a modified tractor, incl. ballast weight, may exceed 4260 mm forward of the center of the rear wheel. Tow-hook not included.
3. For engine-limitations see Chapter 12.

Chapter 6:
MODIFIEDS 950 kg

1. Modified 950 kg are defined as modified tractors with a maximum weight of 950 kg including driver, oil, water and fuel, ready to compete.
2. Modified 950 kg tractors are to meet modified (>950 kg) shielding and safety criteria.
3. No portion of any tractor, incl. ballastweight, may exceed 2440 mm forward of the center of the rear wheel. Tow-hook not included.
4. No portion of any tractor shall exceed 1830 mm in width.
5. It is allowed to have one or more engines.
6. For engine-limitations see Chapter 12.

Chapter 7:
TWO WHEEL DRIVES

A. General rules

1. Maximum length of vehicle to be 4570 mm from center of rear axle to forward most portion of vehicle, including weight racks, etc.
2. Maximum width of vehicle to be 2440 mm wide at widest point.
3. Weights are not to exceed forward as set in rule 1 above nor rearwards more than 305 mm from hitching point or past rear of vehicle, whichever is greater but not to interfere with hitching and unhitching of vehicle. The area 150 mm wide and 305 mm high immediately above the drawbar must be free of all obstructions (including weights, wheelie bars and second drawbars) for ease of hooking and unhooking.
4. Any factory production body truck or van is allowed. Vehicle body style must be or have been available from a dealer as mass produced. Passenger type bodies are allowed.
5. Side doors must be mounted and closed if truck was manufactured with doors. All doors must have a single latch design, allowing the door to be opened from both inside and outside.
6. All competing drivers at all ETPC or affiliated organisation events are required to wear a minimum of one layer fire suit of Nomex 3 or equivalent. However, drivers of flip top body type vehicles not equipped with working doors that are recognizable and operate from inside and outside of the vehicle and do not have a complete fire wall will be required to wear three layers of fire protection (three layer suit or two layer suit with Nomex or equivalent fabric underwear). Escape hatches will not be counted as a working door.
7. Front and back glass or plexiglass required. Factory tinted glass acceptable. Stained or smoked glass not allowed on any windows.
   Tinted windows that impair Track Official's view of driver's compartment are unacceptable
8. A funny car body is a body that has to be lifted up entirely to provide access to the driver's compartment. This kind of bodies must have an escape hatch or doors on the top or in the back of the body. If a funny car body is used, the driver has to be able to prove that he can leave his vehicle within 10 seconds, without using the lifting system of the body.
9. All vehicles must have a complete firewall (no holes except for controls). Firewall aluminum or steel (mm. 2 mm), or Lexan (mm. 3 mm).
   If driver compartment is not completely sealed from engine compartment, driver must wear approved complete fire suit including mask, helmet and gloves and have on-board fire extinguisher with minimum of four nozzles.
10. Truck must have hood, grill and fenders in place as intended by manufacturer. Contact ETPC or affiliated organisation board for any variances.
11. Truck must have a presentable van/pickup bed with cover or flatbed in place.
12. No fuel tanks, fuel pressure gauges and fuel lines inside operator compartment.
13. Chassis (frame) may be truck frame of fabricated frame like modified tractors.
14. Driver must be in original drivers-compartment.
15. No part of the body that is mounted with hinges may leave its original place during a pull. Escape hatches in the top of the body are excluded from this rule. If a part of the body does leave its original place, the vehicle will be disqualified.

B. Engines and drivelines

1. One automotive type engine or its replica allowed. An automotive engine is any engine or its replica available in a passenger car (maximum of eight cylinders). Chevrolet talldeck engines - if within the limit - are allowed. replica to be considered legal must accept and swing a stock crankshaft.
   All engines must be behind grill and in engine compartment unless the ETPC or affiliated organisation board approves a variance.
2. All pertinent criteria of modified tractors regarding safety, construction and operation will be adhered to unless special variations are noted.
3. All shielding on superchargers, turbochargers, centrifugal superchargers, intercoolers, etc. are to be the same as modified and super stock tractors.
   Shielding for blower belts on V8 engines can be open at bottom part.
4. Engine to clutch to transmission and shielding to be constructed the same as stated for a modified tractor.
5. Axle and hub bolts shield (steel or aluminum mm 2 mm thick) required on all rear ends unless it is a planetary drive rear end.
6. If the battery is inside the driver s compartment it must be safely enclosed and securely fastened down.
7. No radiator, heat exchanger and/or water hoses are allowed inside the driver's compartment.
8. All two wheel drive vehicles are to have a minimum of 610 mm from ground vertical bumpers to prevent vehicles from passing over buck-board of sled.
   Bumper to extend a minimum of 200 mm vertically. Must be of rigid construction.
9. The hook-point of the hitch have to be higher than the mounting point of the drawbar-construction.
10. For engine-limitations see Chapter 12.

Chapter 8:
TRUCKS

A. Tandem axle trucks

1. Vehicles must be stock appearance for that year, model and make of semi truck with all the normal mandatory components for use on the road with a maximum width of 2600 mm.
2. One (1) production-available commercial truck engine only with diesel as fuel will be allowed. No multi-engine. No non-commercial truck engine. Engine must be used in the type of truck used by manufacturer and should be mounted at the original place.
3. Fans must have fiberglass blades, a complete shielding made out of steel, aluminum or polyester with a minimum thickness of 2 mm must encircle the fan area (360 degrees) and must be securely attached to the radiator.
4. All vehicles must have a firewall between the engine and the drivers-place which extend from top of hood to cabin floor from side shielding to side shielding made out of steel or aluminum with a minimum thickness of 2 mm.
5. All batteries must be securely mounted outside the cabin.
6. Only tandem drive axle semi-trucks will be permitted to compete. No front wheel drive allowed. No single axle trucks, welldrilling, wreckers, boomtrucks etc. are allowed.
7. Transmission and rear ends must be commercial semitruck factory components.
8. No air suspension or other mechanical lift mechanisms on all axles.
9. The rear drive axle must be secured by chain or other device to the frame to maintain legal hitch height, while hooked to the sled.
10. Tires on rear drive axle, losing contact with the ground while hooked to the sled is grounds for disqualification.
11. Trucks are to meet modified shielding and safety criteria.
12. Weights are not to extend further back than 1295 mm (measured from center rear drive axle).
    Weights are not to extend further forwards than 610 mm (measured from original front bumper).

B. Single axle trucks

For single axle trucks, the same rules as for tandem axle trucks are applied with the following exceptions:

1. Only 4 x 2 trucks are permitted.
2. Maximum total weight 8500 kg.
3. Maximum wheelbase 3800 mm.
4. The total length of the drawbar may not be more than 40% of the wheelbase (drawbar length is measured from the centerline of the rear wheels to the hooking point).
5. The fifth wheel plate may be moved forward 610 mm from the centerline of the rear wheels. It may be moved as far back as the centerline of the rear wheels.
6. Maximum drawbar height is 1200 mm.
7. Minimum drawbar length 1100 mm (from centerline rear wheels to hooking point).
8. Stabilizer bars required, the same as with big tractors.
9. Maximum tire size 315/80-22,5(13-22,5).

For engine-limitations see Chapter 12.

Chapter 9:
EXHIBITION VEHICLES

All vehicles participating in or exhibiting at any ETPC or affiliated organisation sanctioned event and hooking to a sled or sleds, must meet all ETPC safety requirements applicable.

Chapter 10:
OPERATION OF CONTEST

A. General rules

1. Pulling vehicles must be operated in a safe manner at all times within the confines of the track, pits and staging areas. Officials have the right to stop and disqualify any vehicle if it is not being operated in such a manner as would be considered safe.
2. Driver must remain seated while one or more engines of his vehicle are running. Leaving the seat is only allowed when all engines have completely stopped running. He must remain seated during the pull and must have complete control of the vehicle at all times.
3. Only the driver will be allowed on a vehicle when it is being towed or driven, NO riders in or on any vehicle, in pit, track or adjacent areas.
4. The driver and two helpers (one (1) at the start and one (1) helper at the end of the track) will be allowed to the track. Running with the tractor under green flag along trackside is forbidden. As track will be defined an area which includes the track and ten meters of space around the track. Violation of this rule will cause a disqualification of that pull.
   For a driver with one (1) helper the rule is as follows:
   The driver and one (1) helper will be allowed to the track. After assisting the driver at the starting line, the helper takes a position close to the public fence. Running with the tractor under green flag along trackside is forbidden. After the tractor has come to a standstill the helper can assist the driver. Violation of this rule will cause a disqualification of that pull.
5. Any driver or any of his crew incapacitated due to an intoxicating agent, and/or drugs, his/her pulling vehicle will not compete for the duration of the pull. Further, any puller or pit crew member found around the track area with intoxicant will forfeit winnings and points from that event or his/her pulling vehicle will be banned from the next sanctioned event he/she appears at to compete.
6. Unsportsmanlike conduct including abusive language and/or physical action toward event official, fellow competitor, or spectator and/or deliberate delay of event, will be just cause for a minimum penalty of total disqualification from that event.
   Disqualified competitor will lose any prior placings, prize money, contingency money points and/or event awards at that event. If behavior deems a severer penalty, said penalty will by determined by ETPC or affiliated organisation board.
7. An attempt is defined as moving the sled a measurable distance.
8. All pulls made during a contest will be measured. All pulls will be measured from the starting line to the front of sled where it stops.
9. Pulling vehicles must remain within boundaries of contest course during a pull or will be disqualified. Sled pan must be within boundary lines at start of pull.
   Chalkline is to constitute track boundary.
10. Excessive loss of liquid by a pulling vehicle under the green flag, either in forward motion or standing still while hooked to the sled, will be cause for disqualification unless due to internal breakage.
    (Excessive is defined as any steady or intermittent stream discharged on the track, or a spot equivalent to more than 200 mm diameter).
11. If a vehicle is legal when hooked to the sled, and if breakage occurs while under green flag due to unforseen circumstances - with the exception of loss of ballast or safety equipment - the pull will be measured.

12. Any vehicle that hooks to the sled and makes a measurable pull shall be considered to have made an official hook even if the sled is reset and vehicle cannot rehook. The vehicle would be considered to have made a normal pull.
13. Only when the original mechanical method of starting fails to work, tow start will be authorized.
14. All pulling vehicles must be able to drive on the track and back up to the sled at the starting line. They must also be able to back up to unhook and drive off the track on their own power unless breakage occurs at the event or vehicle will be disqualified. If track circumstances (too much dirt or too deep holes) or technical problems with the tractor prevent the tractor from driving away from sled on its own power after pulling attempt, this will not be a reason for disqualification.
    Minipullers are exempt from backing-up portion of this rule.
15. ETPC recommends that sled setting on international events will be done by sled operator together with the Senior Track Official. If the sled operator does not agree with the Senior Track Official's proposal, the Senior Track Official can, by his own decision, allow the sled operator to carry out first 2 pulls with his setting.
    If the Senior Track Official is not satisfied with sled performance and/or sled setting, he can demand the setting to be changed. The final decision will be taken by Senior Track Official.
16. Violation of any rule shall constitute a disqualification.
17. In the case of a class not completed because of rain, sledge breakage, etc. decisions are to be made by Track Official or/and Officials.
18. It is not allowed to drive a vehicle on its own power outside the closed area (track area and closed pit). Vehicles that make use of an auxiliary power unit are excluded from this rule.
19. The ETPC Tech and Safety Board has the right to take possession of any part(s) of a competing vehicle for closer inspection when necessary. After the inspection, the part(s) will be returned to the pulling team in question.

B. Track and track officials

1. - All official contests must have available a dirt track of 100 meters length and not less than 10 meters in width.
   - A safety run off area of 30 meters is required. Width to be an acceptable exit.
   - A minimum width of 10 meters on each side of the track is required as safety area.
   - At indoor pulls the measurements of the track area can be different.
2. Crash barriers with a height of 60-75 cm or trenches 100 cm wide and at least 50 cm deep are mandatory on both sides of the track at Euro Cups and European Championships. It is highly recommended for the distance of crash barrier or trench to be a minimum of 7 meters from the track, minimum of 2.5 meters from the spectators.
3. All tracks must be maintained and packed after each pull.
4. No one is allowed on the track except for the Track Officials and contestant when the vehicle is under the green flag. Track is defined as the area within 0.5 meters in any direction of the contest course boundaries, including the run off area at the end of the track.
5. All pulls shall operate with two flagman. Starting flagman will be responsible for readiness of track, sled and contestant. Second flagman will be responsible for balance of course.
6. Pulling or leaving starting line under red flag will be cause for disqualification.

7. Sled will be towed or driven back or forward to starting line before each attempt. No official pull may start beyond starting line in either direction. All sleds to be started with front of pan even with starting line in gear.
8. Each contestant has the privilege of, and the responsibility for spotting the sled for both of his/her attempts. Pull back tractor/loader/sled operator must be notified of where contestant wishes sled placed when previous contestant unhooks from the sled. Use of crew members is recommended for spoiling the sled to expedite the show.

C. Test pulls and options

1. Number one puller will be test puller and may take his/her pull if weight transfer is deemed right. In case it was a test pull, the test puller will pull again after six (6) competitors have made their pulling attempts
2. The number one or test puller is not disqualified or measured for running out of bounds on first attempt only. He is to be disqualified on second or subsequent attempts if he goes out of bounds.
3. If weight transfer needs further adjustment, the first puller after each adjustment will be treated as the number one or test puller.
4. All pulls must start with a tight chain. Contestant will be allowed a total of two attempts and 20 meters to start the sled. If the driver lets of the throttle before 20 meters he will get a second attempt, even if going beyond 20 meters. Result of first attempt will fall. If no effort is made to release throttle, no second attempt will be given The intent is for drivers not to slam the brakes to stop before 20 meters (or at any time), but to come to as smooth a stop as possible. Jerking the sled by backing out of the throttle will be considered a ground for disqualification by Track Officials. Track Officials will use their own judgment on this call.
5. There will be no maintenance on the track before the second attempt.
6. If the class is restarted, all contestants having pulled previously will have the same options as the number one puller. In the case of a restart it is the competitor's responsibility to inform Track Official of his/her decision.
7. A class can be re-started if the first five competitors have made a full pull.
8. A driver's decision on a re-pull has to be made before vehicle leaves the track area.
9. Any disqualification on the first attempt bars a second attempt. Should class be restarted, puller disqualified will be allowed to pull in position drawn.
10. Contestants must pull at position drawn within three minutes after sled is at readiness. Any delay will mean disqualification. If presiding first flagman is notified he may drop six positions. This may be done only once per contestant per class.
11. If a contestant experiences mechanical problems during a test pull (before first official pull), Track Official may grant the contestant the option of dropping to sixth or last position.
12. Contestant will be able to drop six places if breakage occurs on first attempt, if not past 20 meters. He will get a total of two chances.
13. If the last vehicle in a class experiences mechanical problems, it should be allowed six minutes to hook and make an attempt.
14. On any re-pull caused by a contest malfunction, the puller, at his discretion, may drop six positions.
15. When a competitor is test puller and the sled is reset after his pull to a lighter sled-setting, he is allowed to take that pull.

D. Pull-offs

1. In a pull-off each contestant in his/her turn will be allowed two attempts to make a measurable pull, if not past 20 meters.
2. The sled should be re adjusted if the first contestant fails to reach 38 meters (at Eurocups and European Championships 60 meters) provided that the pulling vehicle performs well: Possible re-adjustment is at the discretion of the Track Jury.
3. If the first contestant succeeds in making a full pull, all contestants must pull at that setting unless in the Track Official's opinion, the sled operator has made a mistake.
4. A floating finish line - with a ten meter maximum - may be used at the discretion of the Senior Track Official and/or Track Officials and only in a pull-off situation. Extended boundaries must be clearly chalked. Competitors must be informed in advance at the driver's meeting and before the pull-off. Run-out area needs to be a minimum of 40 meters.
5. Order of pull will be in the order in which the vehicles involved made full pulls, unless there has been a sled setting change by Track Official.
   No dropping six positions in a pull-off.
6. If a pull-off is not run on the same track, or with the same sled, or the same day, the first puller will have the option of taking the first pull or drop six places.

E. Summary of causes for disqualification

1. Loss of ballast weight under the green flag.
2. Loss of safety equipment, and failure of safety equipment to function while under the green flag.
3. Excessive loss of liquid (steady or intermittent stream discharged on the track or a spot equivalent to more than 200 mm in diameter) under the green flag.
4. Use of illegal fuel (nitro methane, nitrous oxide or other oxygen carriers, or combustion accelerators).
5. Out of bounds (pulling vehicle only), touching the chalk line.
6. Unsafe operation of competing vehicle.
7. At indoor pulls diesel, super stock or modifieds with excessive exhaust leakage or exhaust extension collapse.
8. Use of illegal equipment.
9. Leaving the starting line under the red flag.
10. Penalty for intentional use of illegal drawbar shall be suspension of membership and loss of points for one year and ten days from date of infraction.
11. Any knowing violation of any rule shall be considered illegal. Severity of punishment to be at the discretion of the ETPC or affiliated organisation.
12. The decision of the International Jury or Track Officials is final and shall not be appealable; provided, however, that with a showing of reasonable and good cause, the International Jury or Track Officials may, without liability, reverse or revise their decision. Calls of judgment are not subject to appeal and shall be final.

F. Protests

1. Any contestant who feels that another contestants vehicle is illegal may protest that vehicle. Team captain can protest in name of participant by the International Jury. The deposit will be 250 Euro; if the vehicle is legal, the deposit will be forfeited; if the vehicle is illegal, protester would get deposit refunded. The protest must be in writing and submitted to the Jury before that particular class is finished.
2. A period of one day will be allowed for an ETPC representative to look over the vehicle: during this time the vehicle will be allowed to compete.
3. Protests on fuel or engine displacement must be made before vehicle in question leaves the track, the deposit will be 500 Euro.

G. Environmental protection and Safety rules

1. On all pulling vehicles, their oil pan and valve cover ventilation pipes, overflow and other drain pipes have to be connected with a liquid collector tank, so that there is no leakage of any kind from the vehicle.
2. It is mandatory for all pulling vehicles to have a piece of plastic or other impervious material underneath the vehicle on the parking place at the pits. After competition, this ground protection including possible liquid has to be taken away by the team, liquid not to be spilled on the ground.
3. In the track area, there must be a minimum of six (6) full water barrels, three (3) on each side of the track, with a minimum volume of 60 liters and buckets with a minimum volume of 10 liters with each barrel, and separate trained personnel to use the equipment in case of a fire.

Chapter 11:

EURO CUP and EUROPEAN CHAMPIONSHIP PULLS

A. Requirements for Euro Cup and European Championship pulls

1. Every European Championship will be a two day event with seven of the most popular classes pulled in Europe.
   Note: ETPC board can decide to have more classes in the coming years. Rule is subject to changes.
   Every year the ETPC board decides, in consultation with the organizer of the European Championship, the sequence and the number of pulls for qualification in each class.
2. Organizer must have available a dirt track, stonefree and hard bottom of 100 meters length and not less than 10 meters in width. A safety run off area of 40 meters is required. Width to be an acceptable exit. A minimum width of 10 meters on each side of the track is required as safety area.
3. The weighbridge must be ETPC approved and big enough to weigh the entire tractor in at once.
4. The sledges in all classes must be EC Legal Superior. Backup sledges in all classes must be Superior.
   Note: Big sledges classed as Legal Superior can also run three classes (incl. 4,5 ton modified) to nominate for EC Legal Superior.
   Modified <950kg classed as Legal Superior can also run a complete modified 950kg class to nominate for EC Legal Superior .
5. ETPC approved laser measuring device for distance measuring.
6. ETPC approved roller and scraper.
7. All purse money on European Championship pulls is based on Euro currency.
8. The awards for the European Championship pulls will be supplied and paid for by the organizer of the pull.

B. Procedures for Euro Cup and European Championship Pulls

1. On each location there will be a designated area, set up by the track official, as a tech area where all vehicles will be routinely teched. The same applies for weighing and drawbar measuring.
2. A competitor may enter late with the permission of the International Jury. However, the International Jury must be notified prior to 10.00 a.m. that the competitor wishes to enter late in order for the competitor to be eligible for pulling the same day.
3. At any Euro Cup pull or European Championship pull, it is mandatory for all drivers or representative to attend any particular drivers-meeting which may be held by the International Jury. Driver or representative not attending drivers meeting without notifying will receive a penalty of 100 Euro. Penalty must be paid before end of the event to the ETPC.
4. If competitor withdraws from the class prior to the start, the competitor's organisation has the right to replace the entry.
   If competitor's organisation can not replace the entry the organizer of the Euro Cup or European Championship can replace the entry to a maximum of three (3) per event.

5. All pulls shall operate with two flagman. Starting flagman will be responsible for readiness of track, sled and contestant. Second flagman will be - together with International Jury - responsible for balance of course. Both first and second flagman will be delivered by the ETPC.
6. On European Championship pulls sled setting will be done by sled operator together with the ETPC International Jury. If the sled operator does not agree with Jury's proposal, the Jury can, by own decision, allow sled operator to carry out first 2 pulls with his setting. If the Jury is not satisfied with sled performance they can demand the setting to be changed.
   The final decision will be taken by the International Jury.
7. In the case of a class not completed because of rain, sledge breakage, etc. decisions are to be made by the President of the ETPC in consultation with the International Jury and organisation of the country where the pull is held.
8. In the case of a rainout/canceling of the event, starting money will always be paid out and price money will only be paid out if the class is finished 50% or more. When the pull-off is not completed, the price money will be divided over the whole class.

Chapter 12:
LIMITS

A. General rules

1. The following limits will be effective for all classes on all levels of competition in Europe on events/pulls sanctioned by the ETPC or affiliated organisation.
   The limits regarding modifieds, super stock, pro stock, modifieds < 950 kg and trucks are set for a period of three (3) years, effective from January 1, 2009.
   The limits regarding two wheel drives are set for a period of five (5) years, effective from January 1, 2009. Two years before the end of the period, new limits will be set for the next period.
2. Limits will be checked by (ETPC or national) Tech and Safety Board in consultation with the competitor.
3. Violation of limits will be sanctioned:
   - Driver, tractor or any combination thereof, all team members and all parts of the vehicle will be disqualified and banned from participation in events or demonstration-pulls, sanctioned by the ETPC or affiliated organisation, for a a period of one (1) year and (10) days from the date of the last violation.
   - The competitor will lose any prior placings, prize money, contingency money a points and/or event awards at that event.
4. In case of over-limited engines on the tractor, over-limited engines must show that they are not running during the pull (eg. by covering the inlet- or outlet).
5. Super stocks, pro stocks and two wheel drives must have two (2) oilpan bolts with a 2 mm hole in bolthead. These two (2) bolts must be placed on one side of the oilpan, next to each other.

B. Limits

1. Modified classes (>950 kg)

modified 2,5 ton: max. 42 engine points
modified 3,5 ton: max. 57 engine points
modified 4,5 ton: max. 76 engine points
modified 5,5 ton: no limits

<u>Point system for engine combinations in modified classes (>950 kg):</u>

A. Automotive V8, wedge style heads (no Pontiac style heads)

1. naturally aspirated ..... 8 points
2. max. blower 8-71 or max. one (mech. driven) charger of any other type ..... 14 points
3. max single stage turbocharged ..... 19 points
4. any other charging system ..... 21 points

continued on next page

B. Automotive V8, any other style heads incl. Hemi

1. naturally aspirated ..... 9 points
2. max. blower 14-71 or max. one (mech. driven) charger of any other type..... 19 points
3. max. single stage turbocharged..... 21 points
4. any other charging system ..... 25 points

C. Piston engines other than A or B, < 1000 c.i. (16387 cc), max. 12 cyl., alcohol fuel

1. naturally aspirated ..... 12 points
2. single stage charged ..... 25 points
3. any other charging system ..... 30 points

D. Piston engines other than A, B or C, < 1675 c.i. (27448 cc) (e.g. RR Merlin)

1. naturally aspirated ..... 9 points
2. single stage charged (petrol and diesel) ..... 15 points
3. single stage charged (alcohol)..... 19 points
4. any other charging system (petrol and diesel) ..... 17 points
5. any other charging system (alcohol)..... 23 points

E. Piston engines ≥ 1675 c.i. (27448 cc) (e.g. Allison)

1. naturally aspirated ..... 11 points
2. single stage charged (diesel)..... 15 points
3. single stage charged (petrol) ..... 17 points
4. single stage charged (alcohol)..... 22 points
5. any other charging system (diesel)..... 19 points
6. any other charging system (petrol) ..... 20 points
7. any other charging system (alcohol)..... 28 points

F. Piston engines ≥ 2000 c.i. (32774 cc) (e.g. RR Griffon)

1. naturally aspirated ..... 17 points
2. single stage charged (diesel) ..... 21 points
3. single stage charged (petrol) ..... 27 points
4. single stage charged (alcohol) ..... 35 points
5. any other charging system (diesel) ..... 30 points
6. any other charging system (petrol) ..... 33 points
7. any other charging system (alcohol) ..... 38 points

G. Piston engines ≥ 3500 c.i. (57355 cc), max 42 cyl.

1. naturally aspirated ..... 40 points
2. charged ..... 65 points

continued on next page

H. Turbine engines

Lycoming T53-L-11 ..... 11 points
TurbomecaTurmo III E 3..... 15 points
Rolls Royce Gnome H 1000 ..... 10 points
Rolls Royce Gnome H 1200 ..... 13 points
Rolls Royce Gnome H 1400-1..... 15 points
lsotov/Klimov TV2-117 low output version (see remark below) ..... 15 points
Isotov/Klimov TV2-117 high output version (see remark below) ..... 17 points
lsotov/Klimov TV3-117 (Mi-14 version) (see remark below)..... 19 points
Isotov/Klimov TV3-117 (other versions) ..... 22 points

I. OEM-automotive piston engines max. 5000 ccm:

Engine-displacement	*naturally aspirated*	*with any charging system*
Max. 1000 ccm	1 point	1.5 point
Max. 2000 ccm	2 points	3 points
Max. 3000 ccm	3 points	4,5 points
Max. 4000 ccm	4 points	6 points
Max. 5000 ccm	5 points	7,5 points

Remarks

1. Interpretation of 'single stage charging':
   - Stock supercharger on aircraft and industrial engines.
   - Application of any size blower.
   - Application of any size and number of turbos as long as there is only one pressure stage.
   - Application of any other than OEM mechanical charger as long as there is only one pressure stage.
2. Interpretation of 'any charging system':
   - Any combination of superchargers or/and turbochargers in more than one pressure stage.
3. Every Isotov/Klimov TV-2 is given 17 points as long as we get the information to make a difference between the versions.
4. The maximum number of TV-2 engines in modified 4,5 ton is four (4) engines.
5. Every Isotov/Klimov TV-3 is given 22 points, unless the competitor can prove to the ETPC Turbine Tech Team that his engine(s) is(are) the Mi-14 version. A competitor will get a written notice, that has to be shown on every request from the (ETPC or national) Tech and Safety Board.
6. The number of free-aspirated V8 engines on modified tractors is unlimited, but they get 8/9 points each in combination with charged engines.
7. One factory built-on supercharger is seen as a single stage charger.
8. Maximum measurements Roots type blowers (inside measurements)

8-71:	length rotorcase:	407 mm (16 inch);
	width rotorcase:	286 mm (11,25 inch).
14-71:	length rotorcase:	483 mm (19 inch);
	width rotorcase:	286 mm (11,25 inch).

   Helix restricted to a max. rotor spiral of 6,5 degrees per inch of rotor-length.

9. Every engine not mentioned in the point system is illegal as long as there is no approval of the ETPC.

* one engine point = approx. 100 horsepower
* one cubic inch (c.i.) = 16.3871 cubic centimetres (cc)

2. Super stocks
- Maximum of three pressure stages with a maximum of four turbos
- Maximum engine size 650 c.i. (10650 cc); see chapter 3
- Limited to two valves per cylinder, except when factory-produced with more (in case of a dispute it is the puller's responsibility to prove that head is factory- produced for farm stock tractors).

3. Pro stocks
- Maximum of one (1) turbocharger
- Maximum engine size 510 c.i. (8364 cc) with 2 valves per cylinder*
- Maximum engine size 7300 cc with more than 2 valves per cylinder*

* see chapter 4

4. Modifieds <950 kg: No limits.

5. Two wheel drives
Allowed is maximum one (1) piston automotive type engine. An automotive type engine is any engine or its replica available in a passengers car. A replica is considered legal if the original crankshaft fits in het engine without any changes. A maximum of eight (8) cylinders are allowed.
Only methanol or petrol is allowed as fuel.
Engine sizes:

a. V8 with wedge style heads
   1. with blower: max. 540 cubic inch, max. 2 valves per cylinder
   2. with turbocharging: max. 500 cubic inch, max. 2 valves per cylinder
   3. blower and turbocharging: max. 500 cubic inch, max. 2 valves per cylinder

Limits on valve-angles (wedge style heads):
   angle intake valve: min. 12 degrees, max. 27 degrees
   angle exhaust valve: min. 6 degrees, max 18 degrees

b. V8 with hemi style heads:
1. with blower: max. 500 cubic inch
2. with turbocharging: not permitted

c. Motor with more than 2 valves per cylinder (max. 5):
   1. blower and/or turbocharging: max. 360 cubic inch

Other types of charging on any type: not permitted in two wheel drive class.

6. Trucks
- Maximum engine size: 18500 cc.

Chapter 13:

ETPC SAFETY PROGRAMME

A. Approved manufacturers

Multiple disc clutch assemblies
Ace Mfg & Parts Co.
Applied Friction Techniques
Atlas Tractor Company
Carolina Precision Engines
Clutch Works Inc.
CMW Racing
Crower Cams & Equipment Co.
Eagle Clutches, *Finland*
East-West Engineering
Exedy America Corp.
High Performance Clutch Corp.
Hypermax Engineering Inc.
L&T parts Inc.
Mark Puwak Racing
Mc Leod Industries, Inc.
Mr. Gasket/Hays Clutch
Performance Industries Racing Clutches
Ram Automotive Co.
RF Enterprises
Rursch Specialty
SSG Engineering Products Inc.
Stroud Safety
Van der Waal Clutches, *Netherlands*
Titan Speed Engineering

Shatter Blankets
Belport, *Belgium*
Clifton Blankets, *UK*
Security Race Products
Stroud Safety
Holland Blankets, *Netherlands*

Turbine Blankets
Belport, *Belgium*

Bellhousings
Browell Bellhousing Inc.
Mr. Gasket/Lakewood Industries
Probell Racing
Trick Titanium Inc.

Blower Restraints - Devices
Deist Safety Equipment
Don Gerardot Racing
J & S East Valley Garage
Mike Kuhl Enterprises
Speciality Automotive Engineering Inc.
Stroud Safety
TAK Racing Enterprises
Tayor Motorsports Products

Blower Restraints – Straps
SES, *Netherlands*

High Pertormance Harmonic Balancers
ATI Racing Transmissions, Inc.
B.H.J. Products
C.A.T. Power Engine Parts
Cyco System Pty, Ltd
Innovators West
Precision Cam Drives Pty, Ltd
Precision Parts Pty, Ltd
TCI Automotive
Vibratech/Unit of Index Corp.

ALL SAFETY ITEMS PERMITTED BY THE NTPA ARE ACCEPTED BY THE ETPC.

B. Age Limits for Safety Equipment

The age of blower restraints, fire suits and shatter blankets must not exceed the limits given below.

1. Blower restraints
   The maximum age of blower restraints (straps) is six (6) years, if not given a shorter warranty by manufacturer.
2. Fire-suits
   The maximum age of Nomex fire suits is six (6) years, for suits made of other materials two (2) years.
3. Shatter blankets
   The maximum age of shatter blankets is five (5) years, if not given a shorter warranty by blanket manufacturer.

   The age of safety equipment has to be documented, see chapter 2, rule 9 in this rulebook.

Chapter 14:
ROLL OVER PROTECTIONS

1. The Driver Roll Over Protection (ROP) has been designed in co-operation with specialists in order to protect the driver in the event of his vehicle tipping over during a tractor pulling competition.
2. The design, or the ROP built according to the given specifications, are not to be understood as an automatic guarantee, as for providing an always adequate protection for the driver during an accident with the tractor.
3. The ROP specifications must be seen as a set of minimum requirements and advisory guidelines.
4. Neither the ETPC Board, the T&S Board nor any of their members can be made responsible for consequences resulting from the application of the ROP specifications or malfunction of the safety devices in question.

A. General Considerations

1. The construction must allow an easy exit for the driver in the event of a fire etc.
2. Tractors weighing more than 4000 kg are recommended to have a tube wall thickness 0.5 mm higher, or more, than specified.
3. If team drivers or tractor constructors think that the ROP constructions specified below are not solid enough, they are free to make them stronger.
4. All NTPA certified ROP cages are permitted by the ETPC.
5. No ballast can be hung from or attached to any portion of the ROP-structure. Chassis-attachment is exempt of this rule.

B. Construction

1. Bending radius of all tubing should be as wide as possible, the minimum is two (2) times the outside diameter of the tube being bent.
2. All fastening bolts must be grade 8.8 or better, this must be clearly marked on the head of the bolt.
3. All welded joints must be welded by an experienced professional; a steel filler metal must be employed that is compatible with the base metal.
4. All weldings must be done according to generally accepted welding practices.
5. No grinding on any welding.
6. All structural material for the ROP shall be seamless mild steel (carbon mechanical) tube or normalized chrome molybdene (DIN Norm 25 CrMo 4) seamless steel tube.
7. Tubing diameters and wall thicknesses are nominal measurements.
8. The dimensional locations of the main structural hoops and secondary tubing shown in the figures are to be used as guidelines but must remain within 20% of the dimensions specified in the figures.
   The maximum backward inclination of the cage is 20 degrees.
9. **Tubing size and material shown in the figures and tables are minimum requirements!**
10. There shall be a minimum of 50 mm between the main hoops and the driver s helmet, both vertically and laterally, with the driver seated in normal position.
11. In order to avoid possible neck injury, the horizontal distance between the main hoops and the driver’s helmet must not be over 200 mm.

12. It is recommended that the fastening construction of the ROP cage to the tractor frame is significantly stiffer than the ROP itself.
13. It is also recommended that the driver's seat should be so constructed that it provides adequate back and shoulder support during an accident. The seat should be mounted to the ROP cage, or the lower support structure with at least four (4) M8 grade 8.8 bolts. The seat back should be bolted to the rear main hoops, and the seat should include a head rest.
14. The use of a 4-point seat belt or better is mandatory. The seat belt must be attached to the roll-cage.

C. Remarks

The T&S Board will allow options 'B' or 'C' to be applied where 'A' is not technically possible (see drawings).

1. If 'A' is used, then both hoops from rear to front must be of one-piece tube.
2. If 'B' or 'C' is used, an additional tube 'S' must be added to the ROP, and the front hoops must be out of ONE piece.
3. If 'C' is used, then the both side-to-side hoops must be out of one-piece tube. In general, you should have as few weldings as possible and do them according to the drawings. Basically, no weldings are allowed on the main hoops, if you must weld a main hoop, please ask the T&S Board.
   It is highly recommended to move the front hoop aft to allow quick exit in the event of fire or other mishap.

See next pages for drawings/illustrations.

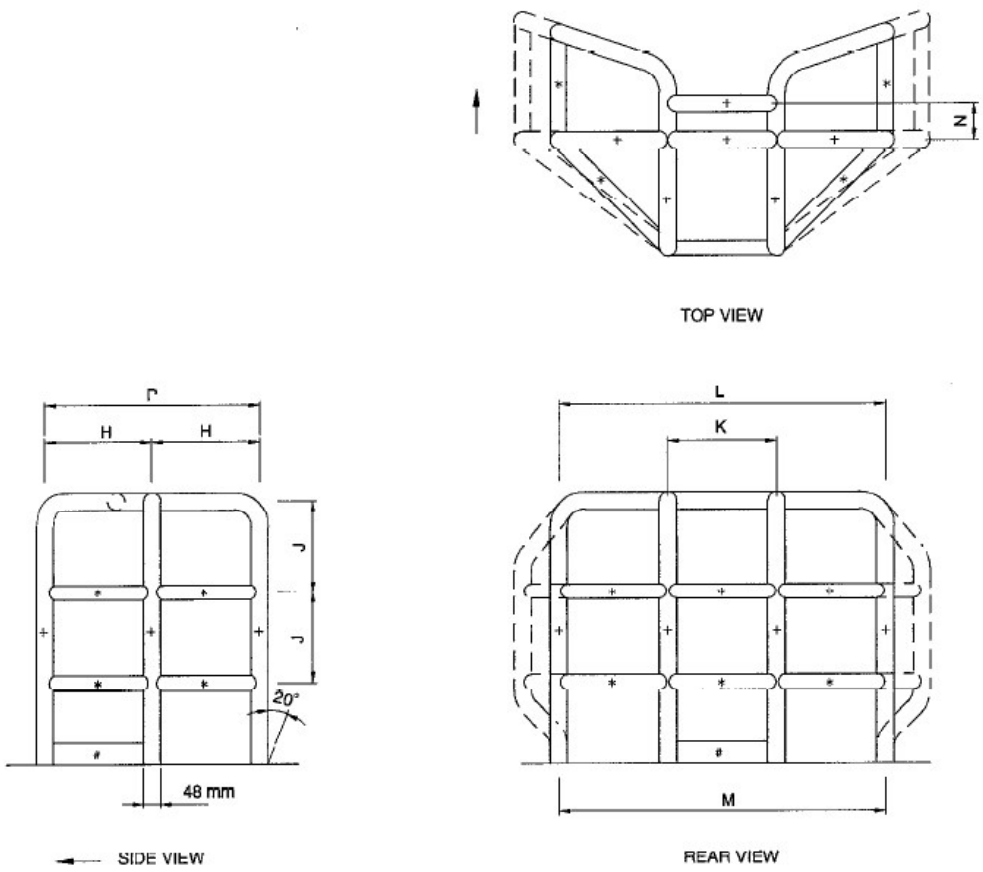


Illustration 14-1: driver roll-over protection A

DRIVER ROLL OVER PROTECTION A

		Mild steel	Chrome molybdene
	Min. outside diam.	Min. wall thickness	Min. wall thickness
tube ” +“	48 mm	3.0 mm	2.5 mm
tube “ * “	42 mm	3.0 mm	2.5 mm

#	=	support webs of 6 mm thick and 80 mm high to be welded between vertical tubes on both sides of rear tubes and to the bottom structure.
H	=	min. 200 mm
J	=	250 mm
K	=	200 mm
L	=	optional, but upper shape must have 50 mm min. clearance (vertical and horizontal) and 200 mm max. clearance (horizontal) to drivers helmet; to avoid neck injury.
M	=	width, dependent upon specific tractor.
N	=	100 mm (min.)
P	=	600 mm (max.)
←	=	forward driving
----	=	options for construction

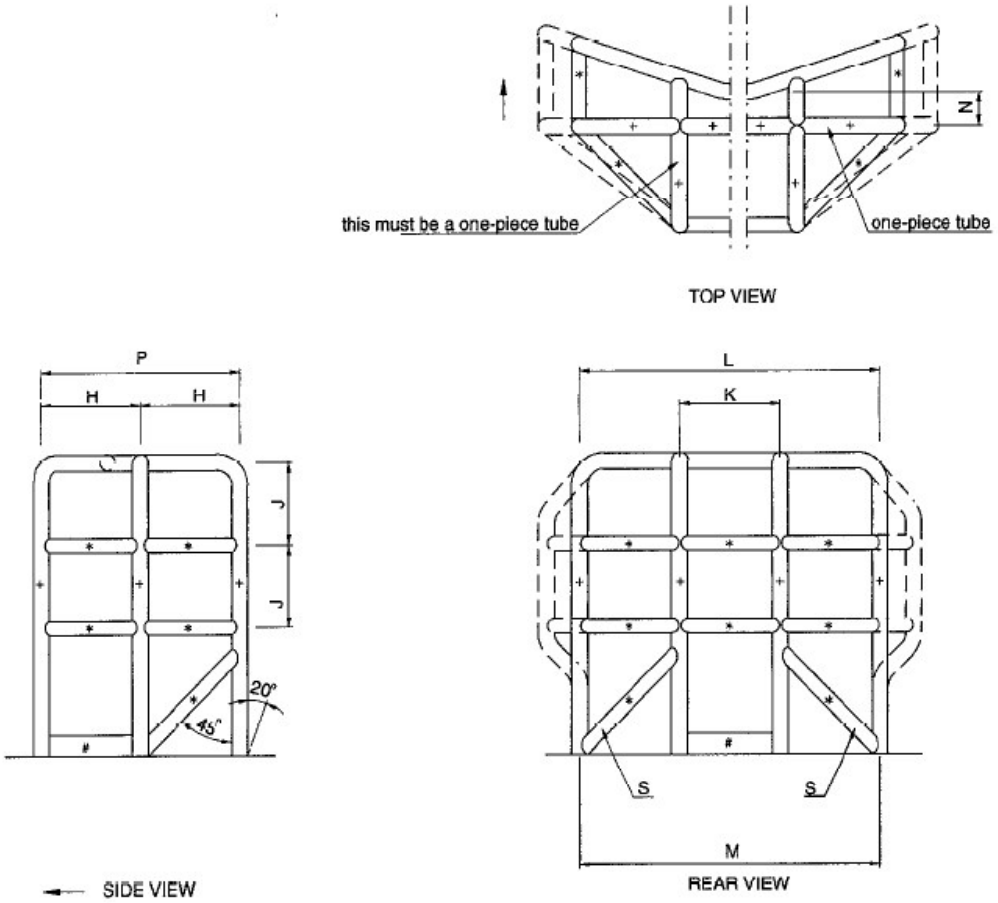


Illustration 14-2: driver roll-over protection B/C

DRIVER ROLL OVER PROTECTION option B and C

		Mild steel	Chrome molybdene
	Min. outside diam.	Min. wall thickness	Min. wall thickness
tube ” +“	48 mm	3.0 mm	2.5 mm
tube “ * “	42 mm	3.0 mm	2.5 mm

\# = support webs of 6 mm thick and 80 mm high to be welded between vertical tubes on both sides of rear tubes and to the bottom structure.
H = min. 200 mm
J = 250 mm
K = 200 mm
L = optional, but upper shape must have 50 mm min. clearance (vertical and horizontal) and 200 mm max. clearance (horizontal) to drivers helmet; to avoid neck injury.
M = width, dependent upon specific tractor.
N = 100 mm (min.)
P = 600 mm (max.)
← = forward driving
---- = options for construction

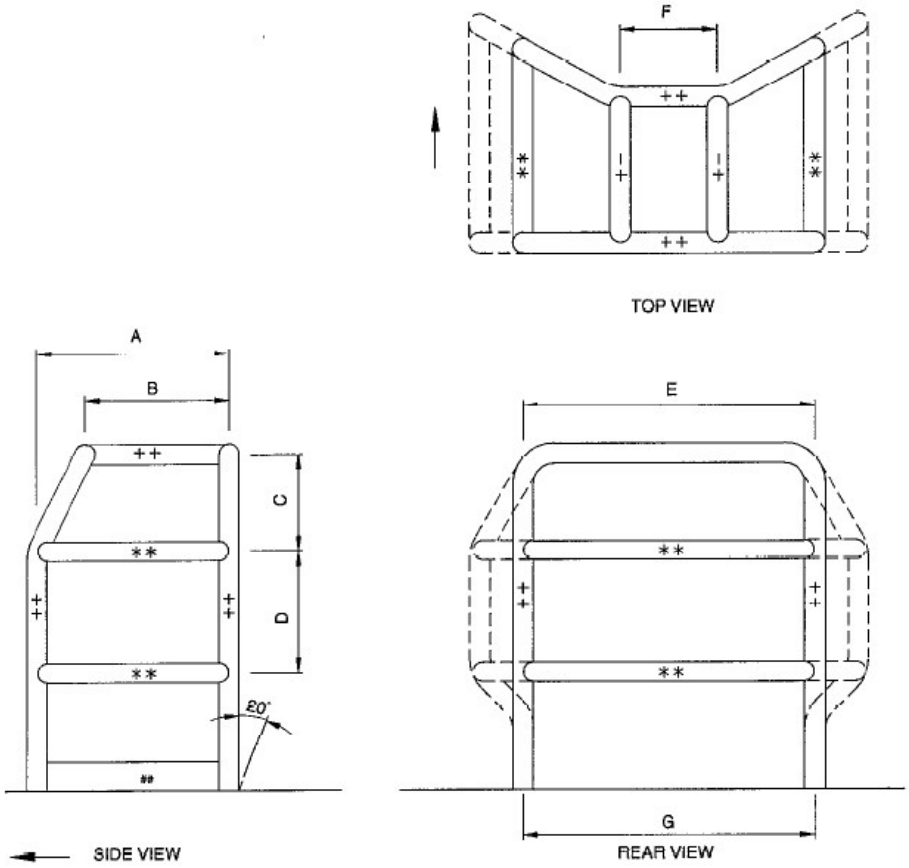


Illustration 14-3: driver roll-over protection modified-tractors <950kg

DRIVER ROLL OVER PROTECTION MODIFIED <950 kg

		Mild steel	Chrome molybdene
	Min. outside diam.	Min. wall thickness	Min. wall thickness
tube ” +“	42 mm	2.5 mm	2.0 mm
tube “ * “	38 mm	2.5 mm	2.0 mm

= support webs of 6 mm thick and 50 mm high to be welded between vertical tubes on both sides of rear tubes and to the bottom structure.
A = min. 400 mm / max. 600 mm
B = min. 300 mm
C = 200 mm
D = 250 mm
E = optional, but upper shape must have 50 mm min. clearance (vertical and horizontal) and 200 mm max. clearance (horizontal) to drivers helmet; to avoid neck injury.
F = 200 mm
G = width, dependat upon specific tractor
← = forward driving
---- = options for construction

ROP-cage mounting on tube type chassis

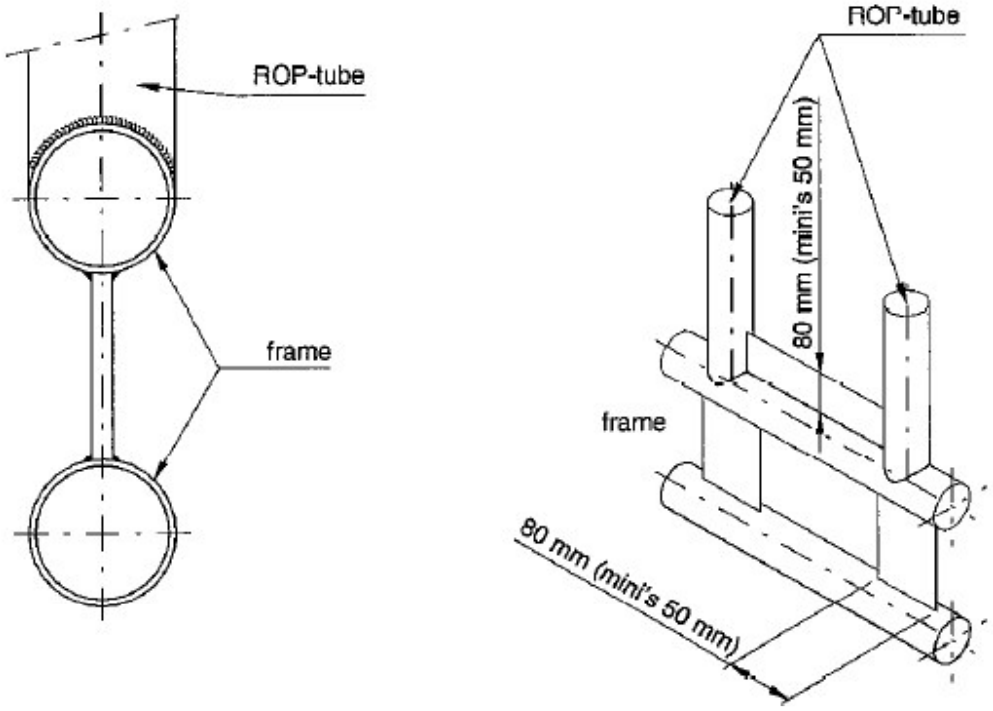


Illustration 14-4: Mounting ROP on tube type frame

Recommendations regarding mounting the ROP-cage to any tube type chassis

- Vertical ROP-cage supports can be welded directly to horizontal tube frame structure.
- Use steel supports to be installed directly between horizontal frame tube and in line with each vertical ROP-cage tube, this steel supports 80 mm x 6 mm min. (50 mm x 6 mm min. for mini's) must extend to the next horizontal frame tube directly below.
- Rear ROP-cage vertical tubes can be welded directly to a rear structure same as the side frame. This rear frame structure can be welded to the vehicle frame.
- Support webs of 80 mm x 6 mm min. (50 mm x 6 mm min. for mini's) can be welded between vertical tubes on both sides and rear tubes.

ROP-cage mounting to OEM rear-end housing

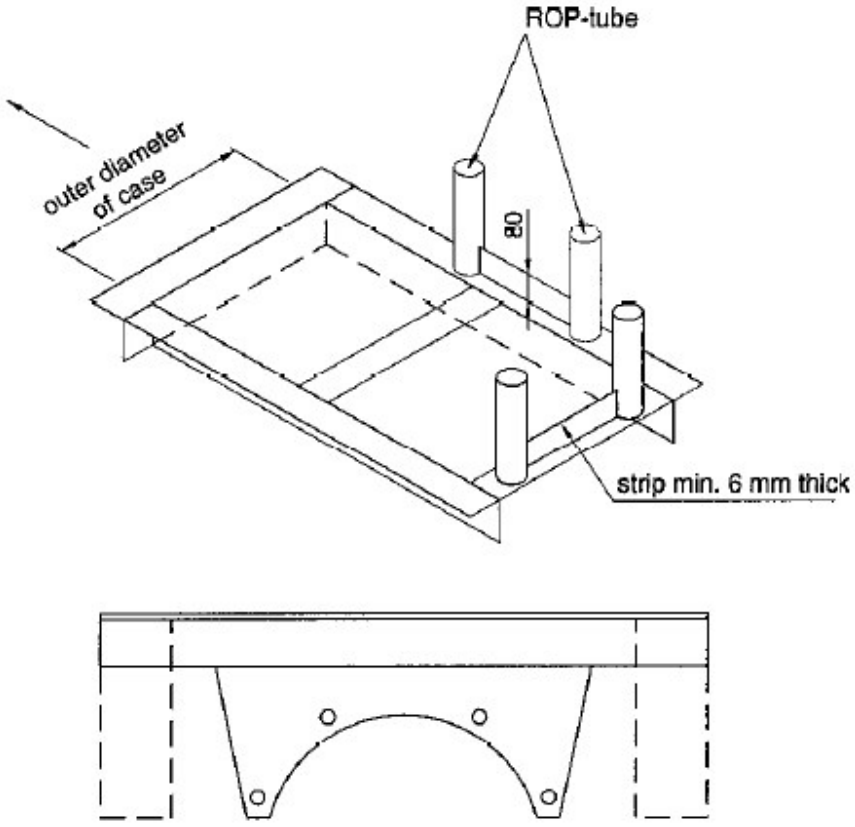


Illustration 14-5: Mounting ROP on OEM rear-end housing

Recommendations regarding mounting the ROP-cage to any stock OEM rear-end housing

- Try to create a rigid one piece assembly on tractor rear-end for maximum strength.
- Do not use material thinner than 6 mm.
- Create two 'U'-shape attachment flange's to use the side flange bolts (four (4) min. each side) to keep the assembly in place.
- Use four additional bolts (min. M12 grade 8.8) to attach the assembly to the axle housing, two before and two after the axle housing.
  Weld the assembly solid together without grinding on any welding.
- Support webs of 80 mm x 6 mm min. (50 mm x 6 mm min. for mini's) vertical from base plate must be welded between vertical tubes on both sides and rear tubes, to create a solid connection from ROP-cage to rear-end.

ROP-cage mounting on channel type chassis

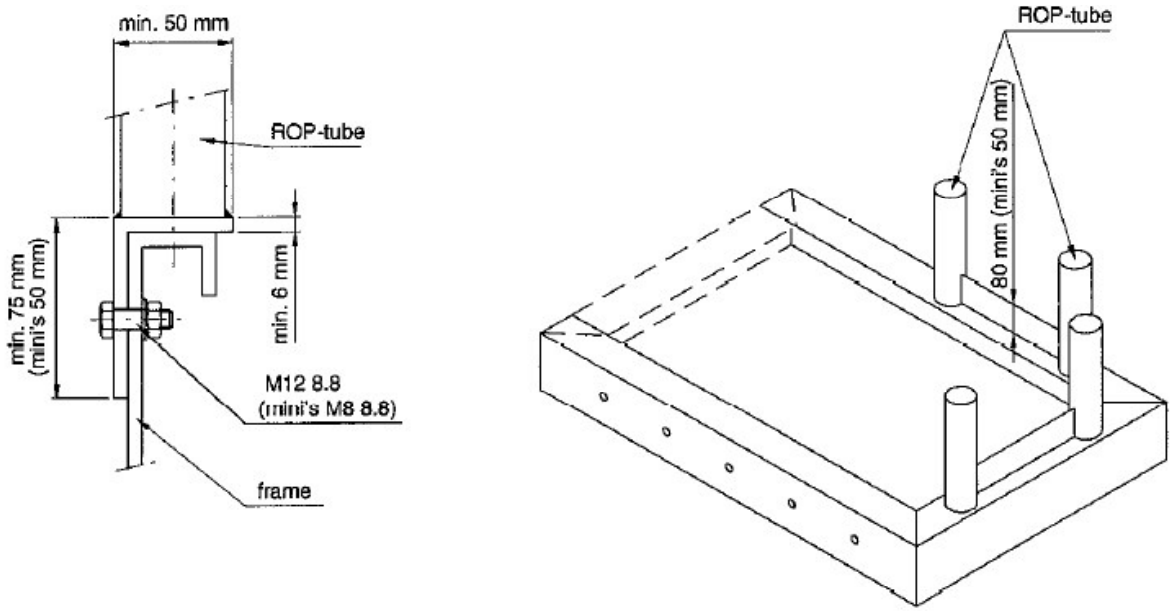


Illustration 14-6: Mounting ROP on channel type frame

Recommendations regarding mounting the ROP-cage to any channel type chassis

- Vertical ROP-cage supports can de welded to a single piece of 6 mm min. thickness steel with a 50 mm min. horizontal flange and 75 mm vertical flange (angle iron).
- Attachment flanges secured to vertical side of frame by at least five (5) M12 grade 8.8 or better bolts.
- Rear ROP-cage vertical tubes can be welded to a 6 mm min. thickness steel flange (with at least same dimensions as side flange).
- Rear mounting flange to be welded to the side flanges or vertical frame rails and must have supports directly below ROP-cage rear tubes, which can be bolted or welded to vehicle frame or rear-end.
- Support webs of 6 mm thick and 80 mm (50 mm for mini's) high to be welded between vertical tubes on both sides and rear tubes.

Removable upper portion - option with sleeves

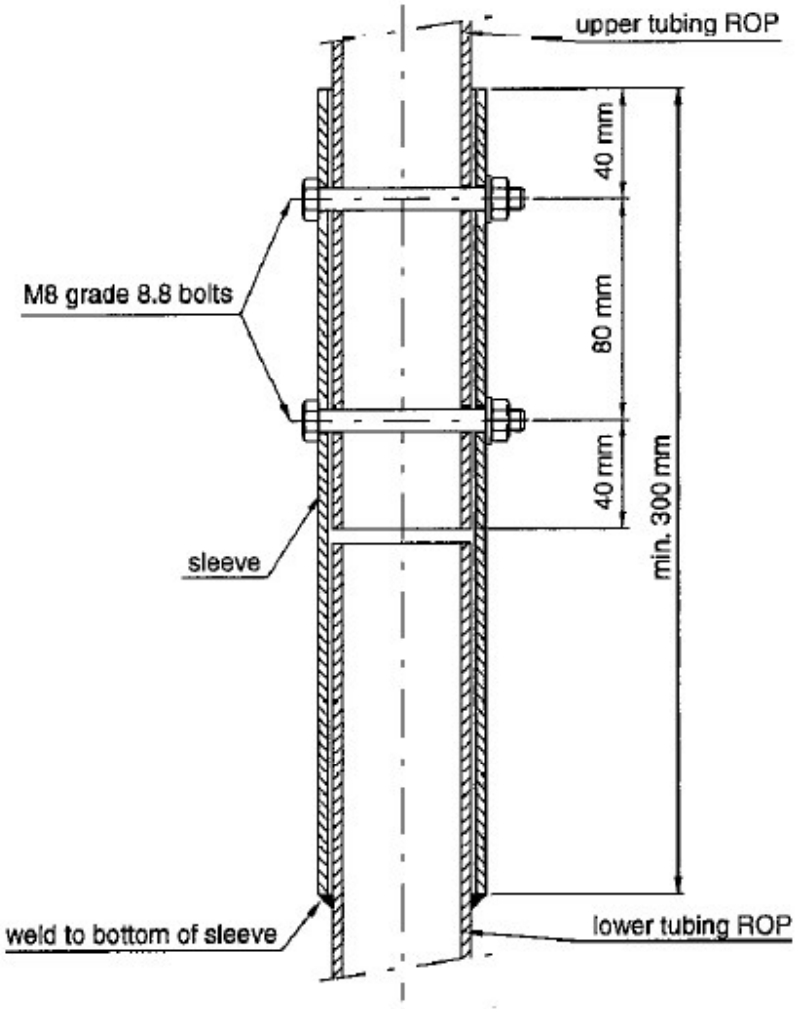


Illustration 14-7: construction removable upper portion

- Per tube two (2) holes as shown to allow M8 grade 8 8 or better bolts
- Bolts through upper tubing, or lower tubing, for removal if desired.
- Sleeve 300 mm min. length (min. wall thickness 3 mm).
- One side of sleeve welded to tubing
- Sleeve may be on inside or outside ROP tubing.
- An inside sleeve should be mounted with bolts as shown, two (2) bolts through each part (top and bottom) of the ROP.